

# The Mining Journal,

## RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 1209.—Vol. XXVIII.

LONDON, SATURDAY, OCTOBER 23, 1858.

[STAMPED.....SIXPENCE.  
UNSTAMPED.....FIVEPENCE.]

**JAMES CROFTS, MINING AND SHAREBROKER,**  
No. 1, FINCH LANE, LONDON (established 14 years), TRANSACTS every  
BUSINESS IN MINING SHARES, but, not being a DEALER, BUYS and SELLS  
orders referred to him.  
He refers the readers of the Journal to his article on the changes and phases  
of the market, on page 698, in which will be found general and particular discussions on  
the value of mining property, on, or irrespective of, the market; his opinions being  
of experience, but not offered as infallible. He will be happy to advise capi-  
talists on all investments at all times.  
\* Special business in Old Tolgus United and North Miners.

**JAMES LANE, No. 29, THREADNEEDLE STREET,**  
MINING SHARE DEALER.

**IES B. BRENCHELY, 19, TOKENHOUSE YARD,**  
LONDON, transacts BUSINESS, as a BUYER or SELLER, in DIVIDEND and  
MINING SHARES, for CASH.

Others for which there is an enquiry, and for delivery—  
Bertha, 50 Crebor, 1 Margaret, 10 Par Consols.  
John del Rey, £10, 5 North Miners, 10 Par Consols, 22s. 6d.

Correct prices to bona fide buyers.  
State cash given for Margaret, Cam Brea, Tamar, Providence, Herodasfoot, and  
Bankers: London and Westminster, Lothbury.

**DIVIDEND MINES**, well selected, are the BEST of all PUBLIC  
INVESTMENTS, paying, as they do (in dividends every two or three months),  
to 30 per cent. per annum. NON-DIVIDEND MINES, carefully chosen,  
advance in price 500 per cent., or more.

**PETER WATSON**, having 14 years' experience in every department of mining and  
management, together with an extensive and regular correspondence with mining  
agents in Cornwall, Devon, and elsewhere, is enabled to judge of and select  
intrinsically valuable.

**SPECIAL REPORT (WEEKLY) WILL APPEAR IN**  
**PETER WATSON'S "MINING CIRCULAR,"** by his own Agents. ABRIDGED  
and also to be given, and important information on the present and future op-  
erations of mines throughout Cornwall and Devon, with advice thereon as  
to sale of shares.

Who desire to have copies regularly sent them will be supplied for an annual  
fee of £1 ls., or 6d. per copy. PETER WATSON.  
5, Old Broad-street, London, E.C.

**DEAL ADDAMS.—A SPECIAL REPORT** published in  
PETER WATSON'S MINING CIRCULAR AND SHARE LIST of Oct. 15.

**EWARNE UNITED.—A SPECIAL REPORT** published  
in PETER WATSON'S CIRCULAR of yesterday.

**ANDRON CONSOLS AND LEWIS MINES.**  
Office of reference, at Mr. PETER WATSON'S, 5, OLD BROAD STREET.

**H. B. RYE DOES NOT ADVERTISE PRICES OF MINING**  
SHARES, because the practice is highly prejudicial to mining enterprise, and  
interests. The prices advertised are no guide whatever in investing, and no  
can be placed upon them. In consulting these advertised prices, it will always  
be found that many eligible investments are WILFULLY depreciated, and many rotten  
worthless concerns foisted upon the public. Mr. Rye begs, however, to state  
a large connection, and practical experience extending over 18 years, he is  
able to offer the soundest advice regarding LEGITIMATE investments, and to trans-  
act upon terms most advantageous to his clients.  
77, Old Broad-street, E.C.

**H. B. RYE SPECIALLY RECOMMENDS** to his clients and  
to publish the FOLLOWING MINES for IMMEDIATE INVESTMENT, as  
of the soundest character, and undoubtedly first-rate prospects:—

Wheat Kittie, East Trefusis.  
Wheat Reeth, Ding Dong.  
Wheat Grenville, Hington Down.  
Wheat North Roskear.

**SHARE LIST.—Mr. LELEAN** begs to inform his friends  
that the public that, in consequence of the numerous applications to publish a  
list of prices in the Mining Journal, and to avoid at the same time giving offence  
to those SHARERS that are DEALT IN on the market, at close dealing prices  
day evening, by giving the BUYING and SELLING PRICES:—

Buying. Selling. Buying. Selling.  
Consols ..... 150 ..... 170  
South Tolgus ..... 65 ..... 75  
South Wheat Frances ..... 185 ..... 195  
St. Day United ..... 14 ..... 12s.  
St. Ives Consols ..... 27s. ..... 32s.  
South Tamar ..... 50 ..... 60  
South Lady Bertha ..... 1s. ..... 2s.  
St. Austell Consols ..... 1s. ..... 2s.  
Swanpool ..... 1s. ..... 2s.  
Toivadden ..... 6s. ..... 7s.  
Tincroft ..... 3s. ..... 3s.  
Vale of Towry ..... 14s. ..... 16s.  
West Basset ..... 20 ..... 22s.  
West Wheat Seton ..... 280 ..... 290  
West Par Consols ..... 3s. ..... 3s.  
Wheat Addams ..... 1s. ..... 1s.  
Wheat Grenville ..... 1s. ..... 1s.  
Wheat Harriett ..... 1s. ..... 1s.  
Wheat Margery ..... 8 ..... 9s.  
Wheat Uny ..... 8 ..... 8s.  
Wheat Basset ..... 195 ..... 205  
Wheat Buller ..... 160 ..... 170  
Wheat Charlotte ..... 8 ..... 8  
Wheat Clifford ..... 300 ..... 310  
Wheat Edward ..... 25s. ..... 30s.  
Wheat Jane ..... 14 ..... 16  
Wheat Kittie (Leland) ..... 85s. ..... 94s.  
Wheat Margaret ..... 60 ..... 65  
Wheat Mary Ann ..... 44 ..... 46  
Wheat Reeth ..... 10 ..... 10  
Wheat Trelawny ..... 24 ..... 26  
Wheat Wrey ..... 2 ..... 2  
Yarner ..... 14s. ..... 2s.

As seen by the above that the prices are very wide, and must necessarily be so  
in view of the depression the market has had, but as times get better I hope I shall be  
able to row the prices considerably.

All orders promptly attended to. Commission, 1½ per cent.  
N.B.—This list to be continued every week.  
EAT, Mine Broker and Share Dealer, 4, Cushion-court, Old Broad-street, E.C.

**DOMAS ROACH, MINING AGENT,**  
37, OLD BROAD STREET, E.C.

Who has £2500 to invest for his clients in dividend and first-class progressive  
mines, hence he is a BUYER of West Seton, Granbler, Basset, North Frances,  
and Levant, &c. And has FOR SALE 15 Alfred Consols, 2 Margaret, 5 Great  
Tun, 160 St. Day United, and 15 Bryntail.

**CAPITALISTS.—RELIABLE INFORMATION** may be  
obtained on application to the undersigned, in respect of MISCELLANEOUS  
MINES generally. BANKS, INSURANCE SHARES, LAND COMPANIES,  
British and Foreign, RAILWAYS, FOREIGN STOCKS, and the PUBLIC  
DEBT and SOLD at the closest market price, and at moderate commission,  
given and required. JOHN BATTERS, Stock and Sharebroker,  
Aston-street, London, E.C.

**GLEDHILL AND CO. MINE AGENTS, SHARE**  
BROKERS, and GENERAL DEALERS.  
MINING RECORD OFFICE, 12, SOUTH PARADE, LEEDS.

They selected are the best investments, paying from 15 to 30 per cent. on the  
share have to OFFER SHARES in most of the DIVIDEND and PROGRESSIVE  
mines ready to give every information relative to all mining matters.  
Oct. 15, 1858.

**RY GOULD SHARP, MINE SHARE BROKER.**  
OFFICES, 32, POULTRY, LONDON, E.C.

He transacts in BRITISH and FOREIGN MINE, RAILWAY, BANK,  
INSURANCE SHARES, also SECURITIES of every marketable description.  
Commission on buying and selling transactions, 1½ per cent.

FOR SALE.—30 St. Day United (an offer wanted); 340 Times Mine  
Shares, paid to be sold cheap.  
Bankers: London and Westminster Bank, Lothbury, London, E.C.

**G E O R G E M O O R E,**  
1, CROWN COURT, THREADNEEDLE STREET.

PURCHASERS of undoubted respectability can register transfers and receive CERTI-  
FICATES of same previous to PAYMENT.  
In any business that GEORGE MOORE is favoured with, in which he is the buyer, he  
will give CASH ON RECEIPT OF TRANSFER.

**MR. JOSEPH JAMES REYNOLDS, SEN.,**  
No. 1, ROYAL EXCHANGE BUILDINGS, LONDON, E.C., ENGLISH  
AND FOREIGN STOCK, RAILWAY, AND MINING SHAREBROKER, begs to inform  
his friends and the public that a FAVOURABLE OPPORTUNITY now offers itself to  
capitalists for INVESTMENT in many undertakings of a substantial character, pay-  
ing large dividends. There are also others of a progressive character, well deserving attention.  
Every information can be obtained at his office, which his practical experience en-  
ables him to give respecting all mines worthy of consideration.

**MESSRS. POWELL AND COOKE,**  
MINING AGENTS,  
2, CROWN COURT, THREADNEEDLE STREET, LONDON, E.C.  
Dated October 22, 1858.

**JAMES HERRON** has FOR SALE the following SHARES, at  
the prices quoted, and FREE OF COMMISSION:—

10 Bryntail, £254. 20 Holmbush. 70 So. Lady Bertha, 4s. 3d.  
10 Belling Well, 22s. 6d. 20 Harriett, 17s. 9d. 20 Tamar Consols, 15s. 9d.  
50 Castle, 2s. 6d. 10 Kelly Bray, 34s. 6d. 20 Tincroft, £2 12s. 6d.  
20 Cather & Jane, 4s. 10d. 20 Leicestershire, 25s. 9d. 10 Trewatha, 15s. 9d.  
2 Clifft & West, £3 15s. 10 Lewis, £2 2s. 3 Trelawny, £264.  
100 Devon Wheel Buller. 50 Lady Bertha. 25 Vale of Towry, 15s. 9d.  
10 Drake Walls, 23s. 6d. 50 Molland, 1s. 2d. 30 Virtuous Lady, 4s. 6d.  
1 Dev. Gt. Cons., £467½. 20 Nantoes & Penn., £1¼. 25 Utd. Mines (Tav.), £2s.  
20 E. Providence, 30s. 100 New Crow Hill. 1 Wh. Mary Ann, £454.  
5 East Russell, £204. 20 No. Downs, £1 17s. 6d. 5 Wheel Margery, £10.  
30 East Rosewarne, 4s. 9d. 5 No. Basset, £2 7s. 6d. 10 Wheel Edward.  
1 Granbler, £138½. 5 North Frances. 5 West Basset.  
5 Great Alfred, £3 10s. 5 Old Tolgus United. 10 Wheel Zion.  
20 Garreg, 4s. 9d. 30 Pen. & E. Crin., 9s. 6d. 10 West Providence, £1¼.  
50 Gt. Wh. Vor, £1 7s. 9d. 3 Par Consols, £17½. 1 West Canon, £12s.  
50 Gt. Badden. 2 Rosewarne Unt., £31¼. 20 Wheel Addams, 17s. 9d.  
10 Grenville, 30s. 6d. 20 Round Hill, £1¼. 20 Wheel Russell.  
10 Great Hewas, 12s. 6d. 10 St. John del Rey, £27½. 2 Wheel Margaret, £264.  
10 Hings. Down, £3 2s. 6d. 11 Stridrigg Consols. 20 West Par Cons., 10s. 9d.  
20 Huck. Bridge, 3s. 9d. 11 Stridrigg Consols.

And is a BUYER of 50 Bryntail, £254; Trelawny, £254; Wheel Margery, £264;  
West Canon, 110; Granbler, £138½; Besore, £2; East Providence, 20s.  
There is no doubt that the majority of the brokers in the Mining Market are opposed to  
the system of advertising prices, upon the grounds that it occasionally frustrates  
transactions on the *tapis*, and in some cases renders clients discontented with business  
already completed. But was not a similar result produced by the practice of furnishing  
a daily list to the press? In fact, to such an extent did the evil increase that the Mining  
Exchange determined it should be discontinued. But did this occasion an increased  
amount of business? Quite the contrary, thus proving that the public will not only not  
countenance concealment, but will insist upon publicity.

Mr. HERRON, perfectly coinciding with the view taken by the public, will continue  
his list as usual, taking care to make it worthy of support, by only inserting those shares  
which are entrusted to him for *bona fide* sale. By so doing, he is confident he will, as  
heretofore, receive from the public a satisfactory amount of patronage.

2, Adam's-court, Old Broad-street, Oct. 22, 1858.

**MESSRS. VIVIAN AND REYNOLDS, MINE AGENTS,**  
68, OLD BROAD STREET, LONDON, E.C.

Messrs. VIVIAN and REYNOLDS are enabled, through the long experience of Mr. W. C.  
Vivian as an underground agent and manager of mines in Cornwall, and in various foreign  
countries, to afford information on most important mining districts; and to inspect and  
report on mines. They are also enabled, by the several years' acquaintance of Mr. J. J.  
Reynolds, jun., with the transactions of the London share market, to obtain every advan-  
tage for those who may want either to buy or sell mining or any other description of stock.

Messrs. VIVIAN and REYNOLDS are daily informed from the principal seats of mining,  
which is at the service of those who may honour them with their confidence.

**MR. R. H. M. JACKMAN, MINING AND SHAREBROKER,**  
2, ADAM'S COURT, OLD BROAD STREET.

**MINING SHARES FOR SALE, FOR IMMEDIATE CASH:—**  
10 East Alfred, £1¼. 50 Grenville, 35s. 1 East Basset, £102½.  
20 North Downs, £2½. 10 South Cam Brea, £3¼. 20 Harriett, 16s. 6d.  
50 Devon Par, 14s. 500 St. Day United, 14s. 6d. 20 South Buller and West  
50 West Buller, 6s. 6d. 10 Hington Down, £23½. Penstruthal, 30s.  
50 St. Cuddra, 8s. 6d. 10 Old Trelawny, £264. 5 East Wh. Russell, £264.  
300 Great Hewas, 12s. 6d. 10 Marke Valley, £2½. 100 So. Lady Bertha, 4s. 3d.  
75 Wheel Addams, 17s. 9d.  
Apply to W. MICHELL, 3, Austinfriars, London, E.C.

Oct. 22, 1858.

**ROBERT OLDREY, STOCK, SHARE, AND MINING**  
BROKER, 1, BANK CHAMBERS, LOTHBURY, LONDON.

Terms of commission for buying or selling shares in mines, railways, or banks, for-  
warded on application. Bankers: London Joint-Stock Bank.

**MR. JOHN RISLEY, MINE SHAREBROKER,**  
12, ST. MICHAEL'S ALLEY, CORNHILL, LONDON, E.C.

Mr. J. RISLEY buys and sells mining shares on commission only.

**MR. BRENTON SYMONS, LAND AND MINERAL SURVEYOR,**  
LITHOGRAPHER, &c., TRURO, will be happy to UNDERTAKE SURVEYS  
of every description, either at home or abroad. Mr. SYMONS having an office for litho-  
graphy, can offer advantages to gentlemen who require LITHOGRAPHED PLANS,  
SECTIONS, &c., of MINERAL PROPERTY; having the whole work under his im-  
mediate superintendence, thus saving the time and expense necessary in transmitting the  
plans from the surveyor to the lithographer.

**MINES SUPPLIED WITH CIRCULARS, CERTIFICATES, BOOKS, TUTORIALS, AND**  
**TRIBUTE PAY-SHEETS, SHARE TRANSFERS, &c.** Specimens sent free by post on  
application.

**FIFTEEN TO TWENTY, and even TWENTY-FIVE PER CENT. PER ANNUM**  
upon current value of shares, in CORNISH TIN and COPPER MINES.  
Dividends payable two-monthly or quarterly.

**MR. R. TREDINNICK, MINING ENGINEER, SENDS** his  
**SELECTED LIST OF SOUND PROGRESSIVE AND DIVIDEND SHARES**  
upon the receipt of a Fee of One Guinea.

Review of Cornish and Devon Mining Enterprise, 5s. per copy.  
Maps per set of the Buller and Basset, Great Vor, Alfred Consols, the Providence and  
Margaret, South Canon, and the Devon Great Consols Districts, 2s. 6d. each.

Cornish Mines, well selected, pay better than any other description of securities, are  
freer from risks, and entail less responsibilities than banks and other joint-stock com-  
panies. Shares bought and sold on commission of 2½ per cent.

Money advanced at 10 per cent. annually, for short or long periods, upon approved Min-  
ing Shares.—4, Austinfriars, Old Broad-street, London, E.C.

**TO CAPITALISTS.—MESSRS. FULLER AND CO.,**  
51, THREADNEEDLE STREET, LONDON, are in a position to BUY and  
SELL SHARES in the principal BANKS, MINES, INSURANCE, RAILWAYS, and  
OTHER SECURITIES, many of which at the present price will secure a lasting return  
of from 15 to 20 per cent. Others, of a progressive character, judiciously selected, fre-  
quently rise from 1 to 500 per cent. The present favourable opportunity afforded to pur-  
chase cannot fall to remunerate all who invest.

Messrs. FULLER and Co., being in daily communication and correspondence with agents  
in all parts of the kingdom, have the means of obtaining the most correct information as  
to the future prospects of the various undertakings referred to.

Office hours from Ten till Four o'clock.

**THE MIDLAND IRON COMPANY, ROTHERHAM, YORK-**  
**SHIRE, MANUFACTURERS OF RAILWAY TYRES AND AXLES FOR LO-**  
**COMOTIVE ENGINES, CARRIAGE AND WAGON WHEELS.** From the tests to  
which this iron has been submitted by engineers and railway companies during several  
years, its superior quality has been generally acknowledged, and can be unhesitatingly  
assured.

**MESSRS. A. J. HUTCHINGS AND CO'S**  
**PATENT IMPROVED WIRE ROPE.**

SOLE MAKERS TO THE  
LORDS OF THE ADMIRALTY, THE FRENCH AND TURKISH GOVERNMENTS,  
And the principal Colliery Proprietors throughout the kingdom.

MANUFACTORY, MILL WALK, POPLAR, LONDON.

ROUND and FLAT ROPES of every description, suitable for mining operations or  
other purposes, GALVANISED or UNGALVANISED, MANUFACTURED upon the  
newest and most improved machinery, ensuring greater pliability, durability, and strength;  
and is admitted by the principal colliery proprietors to be far superior to any other kind of  
wire-rope. The superiority of these ropes over hitherto used, in point of strength, light-  
ness, durability, and cost, is admitted by all who have tried them.

GUIDE ROPES, SIGNAL CORD LIGHTING CONDUCTORS, &c.

**MR. T. P. THOMAS, MINING AUCTIONEER,**  
2, CROWN COURT, THREADNEEDLE STREET, LONDON.

**MR. T. P. THOMAS** begs to inform his friends and the public,  
that his NEXT SALE OF MINING SHARES, BY AUCTION, will be HELD  
on THURSDAY, the 11th day of November, at Garraway's Coffee-house, Change-alley,  
Carnhill, London.

Persons wishing to insert shares in the above sale, must apply at the offices of the auc-  
tioneer, 2, Crown-court, Threadneedle-street, London, on or before the 3d day of Nov.

**MR. T. E. W. THOMAS, MINING AGENT AND GENERAL**  
**MINING SHARE DEALER,**  
11, DALE STREET, LIVERPOOL.

**JOHN ROBERT PIKE,**  
MINING AND GENERAL SHARE DEALER,  
3, PINNERS COURT, OLD BROAD STREET, LONDON, E.C.

Now Ready,  
IS MINING FOR METALLIC ORES A LEGITIMATE AND PROFITABLE  
CHANNEL FOR INVESTMENT? OR IS IT NOT? FACTS AND FIGURES.  
May be had gratis on application, either personally or by letter.

**MR. WILLIAM MOORE, STOCK AND SHAREDEALER,**  
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N.B. Business transacted in every description of stock and shares.

**MR. R. LINTHORNE, ENGLISH AND FOREIGN MINING**  
**AGENT, 3, ADAM'S COURT, OLD BROAD STREET, LONDON.**  
N.B. Business transacted in every description of stock and shares.

**MR. E. GOMPERS** has BUSINESS to TRANSACT in most of  
the MINES usually in REQUEST in the MINING MARKET.  
3, Crown-court, Threadneedle-street.

**MR. A B S A L O M F R A N C I S,**  
MINE AGENT AND SURVEYOR,  
TALYBOT, CARDIGANSHIRE.

**FOR SALE, —25 St. Day United, 12s.; 5 North Miners, £7; 25**  
**Catherine and Jane, 5s.; 50 Molland, 1s. 6d.; 50 Vale of Towry, 15s. 9d.—Apply**  
**to "G. F." 18, Southampton-place, Camberwell.**

**TIN MINING.—An INTEREST in a MINE** now at work, with  
rich lodes of tin, and only four shareholders, CAN BE OBTAINED ON HIGHLY  
ADVANTAGEOUS TERMS. OR TWO OR THREE RESPECTABLE PARTIES would  
be ADMITTED on conditions of providing a certain sum for additional machinery. The  
object being that of obtaining profitable returns, which the mine is capable of giving.  
Jobbers need not apply.—Address, "E. A. C." Mining Journal office, 26, Fleet-street.

**WANTED, by a YOUNG MAN, a SITUATION as SAMPLER**  
and ASSAYER. Understands the smelting of the different ores raised in the  
county of Cornwall. Would prefer going abroad.—Address, "N. T. S." Mining Journal  
office, 26, Fleet-street, London, E.C.

**WANTED, by a YOUNG MAN, 24 years of age, a SITUATION**  
in a MINE or MERCHANT'S OFFICE. Can produce first-rate testimonials,  
and would not object to a foreign appointment.—Address, "M. N." Post-office, Redruth.

**WANTED, a MANAGER for an ALKALI WORKS.** He must  
be conversant with all the ordinary branches of the manufacture, and the con-  
struction of the works.—Address to Mr. JOHN KELLETT, Widnes Dock, Warrington.

**LEAD MINES.—WANTED, a PARTNER in a proved SILVER-**  
**LEAD MINE.** The lodes are easily worked, being near surface, and will prove a  
valuable investment, to pay 20 per cent. on the outlay. About £1000 will be sufficient  
to carry on the concern with great profit, as the lodes are rich, and the ore has a ready  
market.—Address, "F. G." Mining Journal office, 26, Fleet-street, E.C.

**TO COPPER AND LEAD SMELTERS.—The ADVERTISER,**  
who practically understands assaying and the operations of smelting in all its  
departments, WISHES to UNDERTAKE the MANAGEMENT of, or OBTAIN  
an AGENCY in, a COPPER or LEAD and SILVER SMELTING WORKS. High re-  
ferences will be offered.—Address with particulars to "E. H. F." Messrs. Salter and King-  
don's estate agency offices, 17, Abchurch-lane, London, E.C.

**TO MERCHANTS AND SHIPPERS, &c.—A YOUNG MAN,**  
respectably connected, and well acquainted with the Birmingham and Wolver-  
hampton trades, OFFERS HIS SERVICES to a shipping or mercantile house, as  
AGENT or BUYER of GOODS, to represent their firm in Birmingham or Wolver-  
hampton and the vicinity. The advertiser is well acquainted with the manufacturers  
in the trade.—Address, "N. W." Post-office, Wolverhampton.

**TO ALKALI AND SULPHURIC ACID MANUFACTURERS.**  
—The ADVERTISER has had the sole management of a large manufactory for  
several years, and is competent to PLAN, ERECT, or MANAGE a similar concern of  
any magnitude, and on the most improved principles, is OPEN to TREAT with man-  
ufacturers having works at present in operation, or capitalists about to erect the same, in  
any part of England or abroad. Highly respectable reference as to ability and character  
will be given.—Communications may be addressed to "X. Y." care of Mr. Jas. Newton  
Warburton, 30, Cumberland-row, Newcastle-on-Tyne.

**TO MINE PROPRIETORS.—TO LET, the CEFN GWYN**  
MINE, in the neighbourhood of Aberystwith. A 30 ft. water-wheel, with a pair  
of first-rate crushers and pumps, now on the mine and in excellent repair, may be pro-  
cured from the late lessees, for cash or shares, or partly in either mode.—For particulars,  
apply to the Rev. LEWIS GILBERTSON, Jesus College, Oxford.

**TO IRONMASTERS.—The ADVERTISER, who has had many**  
years' practical experience, seeks an ENGAGEMENT as FORGE and MILL  
MANAGER. He is thoroughly conversant with the several processes required in making  
coke and charcoal iron, sheet-iron and boiler-plates, Canada plates and tin-plates, as well  
as with the manufacture of bars and rails. Would have no objection to go abroad.  
Highly respectable reference as to ability and character will be given.—Apply to D.  
DAVIS, bookseller, Aberavon.

**ROBERT MUSHET'S ORE BLOOM STEEL, COMBINING**  
ALL THE EXCELLENCIES OF CAST AND SHEAR STEEL, WITHOUT  
ANY OF THEIR DEFECTS. For all purposes to which steel can be applied, it is  
TWICE AS DURABLE as the BEST SHEFFIELD CAST-STEEL at 84s. per cwt.,  
and it requires no caution in tempering. Price, drawn to sizes, 70s. per cwt.—Apply to  
ROBERT MUSHET and Co., Coleford, near Gloucester.

**CHARCOAL PIG-IRON.—THE EAST INDIAN IRON**  
COMPANY, MAKERS and IMPORTERS of PURE CHARCOAL PIG-IRON,  
from their works in the Madras Presidency, DESIRE to RECOMMEND it to the AT-  
TENTION of ENGINEERS, STEEL MANUFACTURERS, and RAILWAY TYRE  
and AXLE MAKERS, as well as for every description of MALLEABLE IRON and  
FOUNDRY WORK, requiring SUPERIOR STRENGTH and QUALITY.—For price,  
&c., address the secretary, Mr. E. J. BURGESS, at the company's offices, 8, Austinfriars,  
London, E.C.

**IN CONSEQUENCE OF NON-PERFORMANCE OF**  
CONTRACT, extra strong HORIZONTAL WINDING ENGINE, 24 in. cylinder  
and 4 ft. 6 in. stroke, wrought-iron shaft, 8½ in. in journals, 8½ in. in body, wrought-  
iron cross-head, fly-wheel 14 ft. diameter, feed pump, and winding drum.—For specifi-  
cations, drawing, and price, apply to WHEATLEY KIRK, Mills Works, Engineering Agent,  
Auctioneer and Valuer, central offices, Cross-street Chambers, Manchester.

**STEAM ENGINE FOR SALE.—WILL BE SOLD**  
A BARGAIN, the owners requiring the space which it occupies, a 45 horse power  
HIGH-PRESSURE HORIZONTAL DOUBLE CYLINDER STEAM ENGINE, particu-  
larly suitable for a flour mill, or for pumping purposes.—Apply by letter only, 889,  
Midland Counties Herald office, Birmingham.

**NICKEL AND COBALT REFINING, and GERMAN SILVER**  
WORKS, 16, OZZELL STREET NORTH, BIRMINGHAM.

**STEPHEN BARKER** begs to inform the Trade that he has the following articles  
for sale:—  
REFINED METALLIC NICKEL. OXIDE OF COBALT. (WIRE, &c.)  
REFINED METALLIC BISMUTH. GERMAN SILVER—IN INGOTS, SHEET,  
NICKEL AND COBALT ORES PURCHASED.

**MR. MURCHISON'S REVIEW OF BRITISH MINING**  
FOR THE QUARTER ENDING 30th SEPTEMBER IS NOW READY, price  
One Shilling, at 117, Bishopsgate-street Within.

**TOLVADEN MINE.—MR. MURCHISON'S QUARTERLY**  
REVIEW, just published, CONTAINS a FULL REPORT on this MINE, by  
Capt. CHARLES THOMAS, of Dolcoath.

Price One Shilling. 117, Bishopsgate-street Within, E.C.



## Original Correspondence.

STEEL-MAKING BY THE BESSEMER PROCESS.  
PRACTICAL APPLICATION, AND SUCCESSFUL RESULT.

SIR,—As your valuable Journal is specially devoted to subjects connected with engineering and its kindred manufactures, I am desirous, before quitting England, to communicate some facts through the medium of your columns which I trust will be found not wholly devoid of interest by your numerous scientific readers.

I scarce need to recall to your memory the effect produced in the whole iron trade of this country by the announcement of Mr. Bessemer's great discovery in the manufacture of iron and steel. Many of the highest authorities in such matters gave the new system at that time their most unequivocal support, while others as strenuously denied the fact; meanwhile the great majority stood aloof, or looked on more than half incredulous, yet unable to deny the just conclusions of theory, or the facts experimentally shown. Such was the interest created by this invention that it spread like a huge wave over the whole continent of Europe, and in a few weeks it had reached my country (Sweden), where the excitement was equal if not greater than in England. Some of our bar-iron manufacturers believed they saw in this new process the entire loss of their old-established trade, while others hailed it as a boon of no ordinary kind; in the midst of their conflicting opinions I determined on an immediate visit to England, where I arrived in May, 1857; I saw the new process worked experimentally by Mr. Bessemer at Baxter House, and I at once became convinced of the correctness of the principle on which his system is based; and in accordance with that conviction (before I returned to Sweden) I ordered a blast-engine and steam-engine of 25-horse power, together with all other necessary apparatus for putting the process into operation. These things were sent over to my works at Edsken, in Sweden. I will not encroach on your valuable space by recounting the many delays and difficulties attending the carriage of this machinery through districts where the roads were almost impassable for such unwieldy masses; suffice it to say that the erection of the whole of the apparatus was, after many difficulties, effected in a most satisfactory manner, and we were enabled to commence in November, 1857, for the first time in Sweden, to make a trial of Mr. Bessemer's invention, which at that time was, of course, totally unknown to any of my people. This want of practical knowledge by the workmen employed naturally produced a series of failures and mishaps, alternating with partial successes, so that I found myself led on step by step, ever getting some new proof of the correctness of the principle, yet as constantly failing from some oversight or want of practical knowledge. In this way a vast deal of time, labour, and money were expended, and some 200 tons or 300 tons of excellent pig-iron consumed, but it was only by thus persevering with the process on a manufacturing scale that we were at last enabled to surmount all difficulties and get the whole system under perfect control. So completely have we accomplished this object that we now make several hundred large ingots of cast-steel in succession, without a single mishap or failure of any kind. The steel can be made either hard, medium, or soft, at pleasure; it draws under the hammer perfectly sound and free from cracks, flaws, or faults of any kind, and has the property of welding in a most remarkable degree.

Steel so made has now been manufactured into cutlery of the first quality, and into every variety of tools for the engineer, as well as for boiler-plates of large dimensions. Our firm has now entirely given up the manufacture of bar-iron, which it had carried on for so many years; and our blast-furnaces and tilt-mills are now wholly employed in making steel by the Bessemer process, which may, therefore, be now considered an accomplished commercial fact, that can no longer admit of question on theoretical grounds; and it is both with pride and pleasure that I find that our firm in Sweden has been the first to have carried out Mr. Bessemer's invention to its fullest extent, by producing ingots of cast-steel of most excellent quality from the molten crude iron, within ten minutes of its leaving the blast-furnace, wholly without manipulation or the use of fuel, and also without ever having had recourse to any one of the numerous plans that have been patented by others, under the idea of improving Mr. Bessemer's most simple and effective process.

We have erected our converting vessel near the top hole of the blast-furnace, so that about one ton of fluid pig-iron can be run into the apparatus at a time; the blast we employ at a pressure of about 7 or 8 lbs. per square inch, and by continuing it for six or seven minutes the whole charge of crude metal is converted into steel, its temperature having risen in this short period to a degree which could only be attained in three hours in the ordinary way, by the employment of twenty-eight separate air-furnaces, each containing two crucibles, and a consumption of hard coke equal to three or four times the weight of the steel.

A large iron ladle, lined with loam (such as is used by the ironfounders), is suspended by a crane, near the converting vessel, into which the fluid steel is discharged; it is then well stirred with a steel rod, which favours the extrication of carbonic oxide gas, and thus forming an abundant flame, which rises above the heads of the workmen. After a short interval of repose, the ladle is raised into a position above the ingot moulds, a plug is then withdrawn from the bottom of the ladle, and the steel allowed to descend in a clear vertical stream into the moulds. The whole time occupied in the process—that is, from the time the fluid pig-iron has run from the blast-furnace until it is formed into ingots of cast-steel—does not exceed twelve minutes; the loss of weight, including the carbon and other impurities given off, varies from 12 to 15 per cent., or about one-half of the waste incurred in the old system of making bar-iron in Sweden. This saving in cost, time, and material, is not the only inducement which the new process holds out to the charcoal iron producer, for the quantity of iron he can make annually depends not on the quantity of iron ore at his command, for the supply of that article is almost unlimited, but the growth of timber in all cases fixes the limits of his operations. It will, therefore, at once be seen how important to him is the new process, because by its means he can produce annually more than 1000 tons of so valuable an article as cast-steel with the same quantity of fuel only as is consumed in the production of 500 tons of bar-iron by the process now in general use.

London, Oct. 13.

G. F. GÖRANSSON (Gefle, Sweden).

MANUFACTURE OF STEEL FROM THE IRON OF THE  
EAST INDIA IRON COMPANY.

SIR,—In the Journal of the 9th inst. a letter appeared on this subject, which stated as briefly as possible "that Mr. Robert Mushet had produced, at one melting, shear steel, equal to the best shear steel made in Sheffield from foreign iron costing from 20*l.* to 30*l.* per ton." There is no doubt whatever but that double shear steel, table knife size, selected and ready for use, is worth from 50*l.* to 60*l.* per ton. If Mr. Mushet can produce an article of equal quality at less than half the price, he has a secret not only worth knowing, but a certain source of wealth. You must not imagine that the welding cast-steel, which has of late years taken the place of shear steel in the manufacture of cutlery, has depreciated the value of single or double shear. On the other hand, there are purposes for which shear steel alone can be used, and the cost of its manufacture cannot be much decreased on the present plan of making it. Practically, it is not necessary to use bar-steel, worth 30*l.* per ton, for making shear steel; but the cost of the process in making single shear is about 8*l.* per ton, double shear about 14*l.* per ton. The operation is to draw the bars, and then weld them, and then draw them again. For double shear the process must be repeated; the result is that every piece of steel is welded and worked till it acquires an elasticity to bend in almost any shape, and return to its former state. This is not all, but the metal is worked till it is free from flaws, and, consequently, is profitable to the manufacturer in the quality of the goods he produces, and satisfactory to the consumer, from the service the articles perform.

I can say that I have seen the steel Mr. Mushet says is equal to the best Sheffield shear steel, and I can also say that it looks exceedingly well; but if some of it were drawn or rolled down to bars  $\frac{1}{2}$  by  $\frac{1}{2}$ , and I could have them to forge into a few palette knives, that would be a most convincing proof to me, and to all practical men, of Mr. Mushet's success. In reference to the East India iron, I am convinced of its superiority, from the fact of having received something like a couple of ounces which had been twisted like a corkscrew. I untwisted it, and not a crack appeared. One end was loose, but it welded at one heat as sound as any iron could be. I made the fragment into a small turning tool, and by a simple, instantaneous, and inexpensive plan rendered it steel sufficient for any kind of wood work. This little tool is left rough, for the purpose of being tested (I have sent it to your office). What is called the tang, which should be inserted in a handle, is soft; the other part is steel. You, and any person calling at your

office, may try that small tool on any description of wood, and will find it suitable for the purposes it professes. I make no secret of hardening iron this way, but it must be good iron which will harden as the fragment alluded to has done. The East India Iron Company has made but little stir in the commercial world. Their business has been quietly pursued, but having a good article in their hands, it is to be trusted that they will make their advantages public, and their iron useful for the better departments of manufacture, for which it is very evidently suited. It has often occurred to me that Mr. Mushet was careful in selecting the iron he uses for the manufacture of steel, and if I may judge of the quality of the iron in question from what I have seen, and the small experiment mentioned above, it would be very hard to find much better material to operate upon either in English or foreign mines.—London, Oct. 18.

J. BENNETT.

## WELSH AND NORTH COUNTRY COAL.

SIR,—One Interested in the subject very correctly observes, in your Journal of last week, that "the several experiments which have hitherto been made with a view to ascertain the relative heating power of North Country and Welsh coal have tended rather to create an ill-feeling between the rival coalowners than to confer any real benefit on the public." I have every reason to believe that the same objection will be found to apply to the experiments now being made by the contending parties; and that, after all, consumers will have to satisfy themselves of the relative value of coal, obtainable from various colliery districts, for their own particular requirements.

Yet I do not agree with your correspondent, that "a furnace that will produce excellent results with Welsh coal would make North Country coal appear comparatively worthless;" or *vice versa*. In a leading article of the *Mining Journal*, May 8, 1858, you put the question, both concisely and truthfully, thus—"Chemical science has now clearly laid down the general character of the material to be dealt with. It is now the work of the mechanical engineer to take the matter in hand, and show us how he can deal with a substance the value of which he knows; but, as its physical condition varies, he must adapt his instrument to use it rightly, as required." That such an instrument there is to use I endeavoured to satisfy you on the week following; and as, in the interim, I have accumulated proof upon proof, without difficulty or discouragement, in evidence of the accuracy of what I then stated, I cannot do better than quote the passage as it originally stood:—

"Consistent of the facts to which you have so ably directed public attention, I have ascertained, with some degree of nicety, through the medium of my patent regulating air-door, the quantity of oxygen required to ignite the combustible gases, thereby preventing smoke, promoting flame, and increasing the pressure of steam in boilers of all forms, with coal varying from the least to the most bituminous quality; and, as an illustration, I have found that the general run of steam coal from South Wales requires only one-sixth part of the supply of oxygen that is indispensable to the similarly perfect combustion of the West Hartley. Yet in no case can the precise quantity be determined beforehand, inasmuch as the furnace draught is not always alike, although all the local conditions of the boiler may appear to be the same; whilst, as between land, marine, and locomotive boilers respectively, and, further, as between marine boilers tried on shore, or in actual use at sea, the difference is very material."

Moreover, so nice is the requisite adjustment of the regulating plate that, with the admission of less or more air into the furnace than the quantity previously ascertained with the regulating air-door to be the supply practically required, the steam pressure is invariably lowered. Not enough air, and the coal gases escape unignited—too much, and the temperature of the furnace is reduced. There is no mystery in this. Experience has demonstrated to me the fact that, when the air admitted is enough to prevent any appearance of smoke from feeding with Welsh steam coal immediately on closing the door, and from West Hartley in less than a minute, the precise supply relatively afforded is continuously required, and the regulator is consequently so fixed and retained until any change in the description of fuel may render desirable a corresponding change in the admission of air. Less or more, and steam is lost."

This adaptability of my invention to every kind of fuel, from the least to the most bituminous, is a peculiarity that has been made apparent in several land furnaces (where convenient to their proprietors), and still more extensively for marine purposes. On one foreign voyage the screw-steamer *Sydney Hall* (as previously reported in your columns) had occasion to use Welsh and West Hartley coal, separately and mixed, which required three distinct adjustments of the air-passages, so as to supply the precise quantity, as nearly as practicable, to ignite the combustible gases evolved by each respectively.

I will elucidate the matter by further instances. The magnificent screw-steamer of the European and American Company generally use Powell's Duffryn, or Warlick's patent fuel, according to the port they start from; but, when abroad, are sometimes supplied with North Country coal. It is as a consequence of these varying conditions that I am in receipt of the following verification of the efficiency of my invention on board these steamers:—

"King William-street, City, Oct. 1.—We are happy to bear testimony to the value of your patent regulating air-doors, which the chief engineers of the screw-steam ships *Lady Jocelyn*, *Indiana*, and *Calcutta*, certify as being very effective in keeping steam, economising fuel, preventing smoke, and improving the condition of the boiler-room, &c. That we are satisfied with the invention is evident from the fact of your now being in course of adapting it, by our orders, to the steam ship *Queen of the South*, and we have no doubt of its further progress in the four sister steamers.—CROCKETT and Co."

In a similarly practical manner I have to refer to the following, wherein mention is made of the *City of Norwich* using North Country coal, or patent fuel, as occasion requires. Of the *Tanning* you have recently published a report, remarkable for its accurate details and favourable results.

"Victoria (London) Docks, Oct. 2.—I am very well satisfied with the efficiency of your patent regulating air-doors, which have been in operation in the engine room of the *Victoria Docks*; indeed, so much so, that they have by my recommendation been fitted to the furnaces of the steam ships *Tanning* and *City of Norwich*, in both of which they prove to be of great advantage.—C. CAPTEN, manager."

Allow me to add another report of similar importance as regards the adaptation of the regulating air-doors to pre-existing furnaces, although there are, at present, no ascertained specialities to refer to regarding the description of coal supplied.

"New London-street, Oct. 4.—Your patent regulating air-doors having been fitted to the steam ships *Peninsula* and *Britannia* for the purpose of economising fuel, adding to steam pressure, and getting rid of the smoke, we beg to inform you that the chief engineers of those vessels report very favourably of the invention, and we do not hesitate to recommend its use.—JOHN HALL, Jun., and Co."

It will be, I think, as obvious to your correspondent as it appears to me that, whilst it is better to let the question of price continue to stimulate fair competition, even where furnaces are local fixtures, than to have them so constructed as to be available only by the use of a particular kind of coal; it becomes indispensable, as far as moveable furnaces are concerned—for marine purposes—that they should have some simple apparatus fitted to them, adaptable to the consumption of any sort of fuel; otherwise it would become necessary for a steamer to have new furnaces every time a change in the quality of the coal supplied to her occurred. Nothing of the sort is requisite—nothing else than that which the most diversified experience has proved to be equal to every contingency.

With respect to stokers, however, my opinion approximates a little nearer to that of your correspondent. Intelligence, nevertheless, is beginning to dawn upon them, whilst the instruction they really want is very easily communicated. "With regulating air-doors keep the fire bright in front; throw the fuel well back, without having any hollows; feed oftener and lighter with North Country than with Welsh coal, stirring the former occasionally to prevent clinkers; and, with whatever fuel, use one-fourth less than with ordinary furnace doors."

Among my personal experiences in relation to stoking I wish to give an amusing example. At sea, on board a large steamer, all appeared to be going on pleasantly with my invention the first day, and I turned in very contentedly at night. Early in the morning I was surprised when I came on deck to see smoke pouring continuously out of the funnel, and upon going into the boiler-room found that the air apertures of the doors had been closed, by order of the chief engineer. He informed me, in reply to my enquiry, that he had ordered them to be closed because they made the fires burn so fiercely the men were afraid the fire-bars would be melted! Rather gratified than dismayed, I asked him to send for the leading stoker, and allow me to ascertain how many shovels full of coal were thrown on at each feeding: the answer was, eight. "Try sir," said I, "with the doors set in action; you are forcing your fires when moderate feeding will do." My request was complied with, and all parties satisfied with the natural result—air being supplied in the required ratio to ignite the carbonaceous gases, three-fourths of the ordinary quantity of fuel sufficed to keep steam, without smoke or risk of fire-bars; so that, in fact, we were saving the labour of the stokers, and economising fuel at the rate of about 25 per cent. A couple of hours afterwards the chief engineer (who, I ought to say, was out of health, and sadly overworked from being short of hands), remarked—"She's keeping steam nicely; but about the heavy firing, Sir; I never thought of that."

Steamship Owners, as well as land-furnace proprietors, are beginning to think of the value of an invention which, for marine purposes, repays its original cost, by economy of fuel, in five or six weeks, and ashore within three months—the relative consumption being so much greater at sea; whilst the stokers they employ can be easily influenced to attend to their

own convenience and the interest of their employers at the same time, when they find their labour is absolutely decreased in the ratio of the economy effected.—J. Fish-street-hill, Oct. 18.

J. LEE STEVENSON.

## THE FARNACES COLLIERY, NEAR GATESHEAD.

SIR,—Noticing in your last week's Journal some observations purporting to be a reply to my letter, which appeared on the 9th inst., on the subject of the Farnaces Colliery, I feel disposed to answer your correspondent finally, and would be obliged by your giving that reply insertion.

Your correspondent (evidently not a thoroughly practical miner) proceeds by stating that small "hitches" are formidable obstacles, and adds that he calls them "nips." Now, I have been a colliery viewer for a period of 28 years, and never experienced any formidable obstacles in passing through hitches. As your correspondent does not seem to know the distinction between the counties of Northumberland and Durham drawn between a "hitch" and a "nip," I will presume to enlighten him. The interposition of hitches is considered not to exceed the thickness of the coal seam, whether cast upwards or downwards. If of a greater magnitude, the proper term assigned is a *dyke* or *fault*. When hitches are met with coal is visible to the naked eye, and its continuance is rendered certain from the presence of a coal leader following from the point of the hitch to that where it resumes the usual section. The coal for a limited distance is mostly in such cases more or less tender, and this feature applies more or less to all seams; but I deny such is ever looked upon as any great obstacle. In a pit worked extensively hitches are daily expected, and provided for. The tender, or coarse, coal found is applicable for coking, and supplying the engines, workmen, brick-yards, &c., with fuel, thus saving the use of best coal; so that the impression your correspondent wishes to convey is altogether a trivial matter, and quite contrary to the results he seeks to substantiate.

Again, as to your correspondent's "nip." In such cases the coal suddenly and frequently disappears; the space, or bed of coal, being replaced by intervening strata of variable and mixed character; such a displacement of the coal does not very often change the level or inclination of it when found. These obstacles I have known to be most common in the limestone districts, and I defy your correspondent to point out any formidable nip within the range of the Farnaces royalty.

Your correspondent then refers to "swellings," which are of trivial moment, and occur more or less in all coal seams. He proceeds on this point to remark that it is a curious fact the coal is thickest at the bottom of these basins, but the increase in the thickness of coal is always an addition of coarse coal at the bottom of the seam. Now, here your correspondent points out an advantage rather than otherwise; and I shall show him the benefits obtained from the interposition of splint, or coarse coal, in the bottom of a seam, which not only occurs in the immediate vicinity of swellings, but in many parts, and even in considerable districts, where the seam is perfectly uniform and regular.

If your correspondent understands the practical workings of a mine, he will know that (in this district at any rate) the coal is got by a system of carrying out a certain portion of the bottom coal; and where only good coal prevails in the seam, the carrying produces a very large amount of small coal, and not having a specified limit, from there being found to be such a wide difference in the coal heifers, many thus abuse the best coal, and render the gross production of large coal very defective. Now, the presence of a splint or coarse coal bottom, which is often found to be about 6 in. in thickness, affords a limit to the heaver's carving, and saves the too frequent breakage of the large coal, and from this very cause the produce of large coal is proportionately increased. Moreover, the splint, or coarse coal, being removed, adds increased facilities in the working of horse-roads and tub-ways, as well as a great saving of expense that otherwise is incurred by cutting a hard stratum of stone. Your correspondent's allusion to splint or coarse coal is, therefore, a failure. Again, the workings referred to in the Brockwell seam are, I repeat, limited. This is satisfactorily ascertained, for in advance of the working places a pair of coal drifts were driven to the distance of 160 yards, at which point the seam was found by the then overman, and reported as in every respect good and continuously promising. As to the command of the water, your correspondent creeps over this point, by saying it to be all splint, &c. This expression I should have given him credit for had he been able to support it by any facts, or evidence, or argument; but such is not the case, and I repeat that the water is comparatively nothing to deal with, the upper seams which gave access to the surface being entirely tubed off.

Litigation and disputes with the Farnaces lessees were the primary cause of Messrs. John Bowes and Co's. relinquishment, and not for any reasons assigned by your correspondent. I shall only further repeat to your correspondent that, for the grounds stated in my last, the Elswick Company have prudently abstained from operating on Redhugh royalty until the Elswick operations were accomplished to the Brockwell seam. Some two years ago the representative of Messrs. Bowes and Co. was asked to sell to the Elswick Company the new pit, and the sum named was 8000*l.*, without any plant or stock. Surely this was a broad indication that the Redhugh was to be productive of some considerable good.—Newcastle, Oct. 19.

S. A.

## SAFETY-CAGES.

SIR,—At the Glasco Colliery, Burton-upon-Trent, a rope has, by some evil disposed person, been cut nearly through, which, in addition to the damage done to the property, jeopardised the lives of the workmen, although fortunately the injury was discovered before anyone descended. A reward of 25*l.* has been offered for the apprehension of the offender, but he has not yet been discovered. From the reports of the Inspectors of Coal Mines, it appears that the accidents in shafts are still fearfully numerous, although there has been some slight diminution compared with preceding years, and this naturally leads to the consideration whether some of the patent contrivances, in the shape of safety-cages, so frequently referred to in the *Mining Journal*, might not be advantageously adopted. Of course, for an invention to be worthy of general adoption it must be both cheap and efficient, and surely there are many contrivances which would fulfil these conditions. Not many months since a very cheap apparatus was proposed by Mr. Owen, of Penkilton, near Manchester, and soon after its introduction it was stated that wherever it had been applied it had given satisfaction. Why could not this or some similar contrivance be generally employed? Another very effective machine, though probably rather more expensive, was invented by Mr. Emery, of Colridge, and his model at the Society of Arts Exhibition attracted much attention, but since the model was removed Mr. Emery's name appears to have sunk into oblivion. Now, the Inspectors, or at least some of them, have spoken very favourably of a gate at the top of the shaft, so arranged that it shall rise and fall with the cage, and thus effectually prevent accidents from falls from surface. On perusing the reports, it is found that the majority of lives are lost in this manner, but there is no reason for neglecting the use of such a device, as every life saved is an object. It is a question whether sufficient publicity has been given to the various inventions to make coal owners acquainted with what has been done, and certainly much is said of the number of lives which any particular contrivance has been the means of saving. Whenever in actual working a rope breaks, it should be stated how the invention answered, and how many persons lives were jeopardised. G. C. Sheffield, Oct. 18.

## INSPECTION OF COLLIERIES.

SIR,—Although upon the face of the Inspectors' Reports it appears that the number of deaths from accidents in collieries have increased during the past few years, I think that we have ample evidence that the Act has been productive of good results. I am aware that the aggregate number of deaths in coal mines was 1027 in 1855, 1092 in 1856, and 1122 in 1857; but I think it is only fair to make allowance for the two more than richly calamitous explosions, at Cymmer in 1856, and at Lund Hill in 1857, before we draw a comparison; we shall then have the numbers 1027 for 1855, and 955 and 950 respectively for 1856 and 1857. These extremely destructive explosions seem almost beyond human foresight to prevent; the only way we can console ourselves is that they are of rare occurrence, and we may hope that as the Inspection Act is now more favourably considered by the colliery proprietors, and the inspection rather courted than objected to, they will be even less frequent than they have been. The Arley Main explosion created great sensation at the time, but it cannot be said that any vast improvement in the mode of working collieries was introduced in consequence of that explosion, yet the next accident of equal extent was that at Cymmer, several years after, and although it was followed by the Lund Hill tragedy, I do not think we are justified in concluding that collieries are more carelessly worked, or that a false idea of economy is permitted to outweigh the coal master's desire to secure the safety of his men. I do not mean to say that the system of working pursued at Lund Hill was all that could be desired, but all the inspection in the world would not have prevented nor even lessened the extent of the explosion, unless indeed the Inspector had had power to direct what system should be adopted—a power which no Englishman would wish him to be invested with. We must recollect, however, that Mr. Morton informed us that in addition to the appalling loss of human life, by which 90 widows and 220 children were left unprotected, the proprietors of the mine sustained a pecuniary loss of nearly 20,000*l.*—a fact which will do more to promote a safer system of working than even the suffering inflicted upon the widows and orphans of the deceased. The deaths from explosions during last year showed an increase in nearly every district, but the mechanical accidents, if I may use the term, showed a satisfactory decrease. The explosions in 1857 were 377 against 335 in the preceding year, increase 12; whilst the deaths from other causes were 745 in 1857 against 767 in 1856, decrease 22. Moreover, as the number of lives lost at Lund Hill alone was 47 more than the total increase upon the year, the net result appears to be a considerable saving of human life, by which 90 widows and 220 children were left unprotected, the proprietors of the mine sustained a pecuniary loss of nearly 20,000*l.*—a fact which will do more to promote a safer system of working than even the suffering inflicted upon the widows and orphans of the deceased. The deaths from explosions during last year showed an increase in nearly every district, but the mechanical accidents, if I may use the term, showed a satisfactory decrease. The explosions in 1857 were 377 against 335 in the preceding year, increase 12; whilst the deaths from other causes were 745 in 1857 against 767 in 1856, decrease 22. 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to know what the promoters of the North of England Mining College themselves propose to do, or how they hope to get their institution supported. I trust this information will be given, so that no false notions may arise as to the utility so much desired by the Heston Colliers in their address to Mr. Nicholas Wood. OBSERVER.

#### MINING SCHOOLS, AND CORNISH MINERS.

Sir,—I have read with great interest and much attention the two able communications on this subject which appeared in the Journal of Oct. 2, and Mr. Robert Hunt and a "Mine Captain." I have likewise perused the discussion which took place at the Royal Cornwall Polytechnic Institution. I there perceive that both Lord Falmouth and Sir Charles Lemon are anxious to aid the objects of that useful body, but each expresses a hesitancy of the task proposed to be undertaken. The plan suggested by Mr. Robert Hunt has the merit of being both plain and comprehensive, and no doubt will receive the cordial co-operation of the local gentry, and of all those who are interested in the welfare of the cause of mining education, but if it depends upon the assistance of some years intimate acquaintance with the Cornish character, leads me to argue that it will never receive education until it finds it becomes an absolute necessity. If this is open to all parties competition must arise; other than Cornishmen will then reap the prize, and become managers of mines. A "Mine Captain" boasts of their Celtic origin; to this I can add my testimony, that they are likewise eminently clannish. Some years since I was in the service of a foreign mining company. Our staff comprised several Englishmen, Germans, three Cornish agents, and several miners from the same country. We endeavoured to get up a literary institute, and by discussion endeavour to communicate and mutually elicit information. From this the Cornish agents stood aloof. They incited a spirit of insubordination among the working men of their own country to the other officials. If an order were given it was reluctantly obeyed; and among this clique it was constantly murmured, when referring to one from another part of England not of their own sept. "Oh, what does he know about mining? He does not come from Cornwall. There will be no good done until we have all Cornishmen." The consequence was the work was hindered, and the majority of them were dismissed, and then things progressed much better without them. I had another opportunity of observing them in Spain. Attached to a company there were also a number of Welsh furnacemen, and between these two classes of the Celtic race there was a perpetual feud raging. The officials were obliged constantly to interfere, and great scandal arose owing to the misbehaviour of these so-called Englishmen. By force and fraud the Celt has always made his way—the Milesian and Gael have perished. I have pursued the latter methods; witness the many worthless bala which the disaffected inhabitants of Cockaigne and other districts have bought and so dearly paid for. I am induced to make these remarks in order to show that it is this clannish spirit which causes them so obstinately to reject the benefits offered to them; they are, however, a quick-witted race and apt to learn, and so soon as they perceive that a superior class of men is coming among them competing for the situations they now have the entire monopoly of, they will be as eager and as obedient to the advantages of education as they now doggedly and contumaciously reject them. It is some satisfaction to find that schools which are established in the North of England, and that at Bristol, are steadily progressing, and that the men turned out from these seminaries are likely to be of great utility, not only to themselves but those they are brought into contact with. With the exception of the lead districts, the Cornishman at present imagines he possesses a monopoly, not only of employment in the metallic mines of England, but in all foreign countries where British capital is employed; and if anyone not a native born, no matter how great his experience or superior his talents are, were he to attempt to manage a mine in the country, it would be considered more than sacrilege, and I have no hesitation in affirming that the person so employed would have a task of no ordinary difficulty, and eventually be so harassed by his subordinates and envied by their intrigues that he would be forced to resign his situation, however competent he might be to fulfil it. The motto "One and All," freely translated, means "Cornwall for the Cornishmen." It is of no utility here to discuss projects to ameliorate the condition of a people who imagine they require no improvement. Mr. Robert Hunt, and those enthusiastic gentlemen who are devising means to enlighten the miners in Cornwall, are pursuing a thankless task, whatever means they may propose, which may be, by the subscriptions of the nobility and gentry of the country, it will not only be looked upon with distrust, but opposed with dogged obstinacy. The character of the people must be in a great degree of competition for employment will they bestir themselves. In the meanwhile it is some consolation to know that from other districts each year the ranks are being recruited with able men of higher character and greater acquirements; although at present they lack practice, they will be aided by experience, and when this period arrives some educational movement will take place, but until that time, as regards a Mining School in Cornwall, I perceive no other resource but to wait patiently, and watch the chain of events.

#### ADVERTISING PRICES.

Sir,—In your Notice last week of a letter received from Mr. S. Richards, of Stoke Newington, in reply to my remarks of the preceding Saturday, although it is to be regretted you wanted space to give your readers its entire contents, enough has been given to render a reply from myself a matter of necessity. I was warned, after the appearance of the said remarks, that I had come into collision with a volcano, but had to learn that the latent fire was so moderate as to explode at once, and in a shape not characterized by much of courtesy, although I had taken especial care to declare that in discussing the subject, I was merely illustrating a previous assertion of my own, and had "no desire to give offence to the respectable party in question." For the sake of perspicuity, I must beg to repeat that the question in discussion turns upon the fact as to whether or not all advertisers offer shares below the market price; and that Mr. Richards does not, has already been shown, and is repeated in full force in his Saturday's advertisement, where for Treveltha he asks 25s. 6d.—price on this market 15s. For Lady Bertha, 25s.; price, 11s. 6d. To 12s. 6d. Creake, 21s.; price, 12s. 6d.; and I beg to add I am fully prepared at any time to put business done by the most respectable brokers at these prices. Now, Mr. Richards, although writing from his retreat in Devon, is perfectly well aware of the value in our market of every share he offers; and, therefore, his prices, of no avail here, are, as a matter of course, intended to attract the uninitiated and the credulous speculators in the country, who thus pay 20s. for a share they could readily buy of respectable brokers here at 11s. 6d. to 12s. 6d., and so on. Does Mr. Richards call this kind of bait for the novice commercial honesty? or, under what order of fair trading will Mr. Richards condescend to class it? You are fully aware, Mr. Editor, that I have fearlessly advocated the interests of buyers of shares, through evil and good report; and of late, in a more organized form, appended my name to my remarks, thereby claiming, at least, your protection from abuse and calumny, and, in determining to persevere in this course, I trust I may to future also rely upon it. The abuse alluded to is of a most gross character, since it infamously charges venality on me as a writer in your Journal, which, if true, is deserving of the highest reprobation. I will not even take the trouble to give a formal contradiction to the vulgar insinuation of being "a paid touter," because the question cannot by any possibility apply to me. Mr. Richards's argument, that it is a demerit in me that I have no personal interest in the shares I recommend, is a rather unfortunate one for him; since to unbiased or unclouded minds, the fact would constitute a strong item in my favour, for having no interest in mines I can have no bias. Mr. Richards, on the contrary, enjoys both, and in the highest degree. Another trifling error of diction into which Mr. Richards has fallen is his "maintaining that the system of advertising prices of shares legitimately for sale is a fair and honourable mode of action"—the "legitimacy" consisting in asking (and taking, if the opportunity occurs) 80 to 90 per cent. for a share beyond its value at the time it is offered; and yet a gentleman is to be found who can not only do such things as a dry matter of business, but defend them in your Journal, at the expense of the reputation of others. JAMES CHORRIS.

Fitch-lane, Cornhill, Oct. 19.

#### PEMBROKE AND EAST CRINNIS MINES.

Sir,—I have been lones in the immediate vicinity of courses of ore, worth from 50l. to 80l. per ton, become as narrow as the blade of a knife from a thick mass of many feet of rock, and find it a great pleasure if any observation of mine could do good to this excellent company and its worthy agents. It has occurred to me, on reading Mr. Henderson's very able report, whether the lode, dwindled to a small size, may have been passed in the 162 cross-cut, in the place where he says "the small vein or branch contained good stones of ore, in favourable matrix." I am aware that 2 fms. have been driven eastward on this vein, and this while persevering against bad air; but, as I have more often seen lodes change their size and appearance than their underlie, it is possible that a few fathoms driving more in this direction may realize the hopes of the proprietors, and verify the calculations of the agents. I throw out this hint for their consideration, wishing them the success they seem to me so well entitled to. MATTHEW FRANCIS.

Oct. 14.

#### PENGENNA MINE.

Sir,—I am always much amused when I read any communications from that factious contributor to your valuable Journal, Mr. Nicholas Ennor; his self-praise and good fortune being at all times so prominent an ingredient, that one can only wonder that his wisdom-working ways have not long since made him a Cressus, such good mines having fallen to his lot. In last week's Journal he favours our readers on the subject of "Selecting Mines," one of which (Pengenma) he rather freely dilates on. This mine, it seems, Mr. Ennor has taken under his wing, and assures us that, from the immense masses of gossan he has discovered on the lodes, and their proximity to Old Treburget, nothing can result but riches in galore. As the company is formed, and I presume the mine in progress, I hope Mr. Ennor will not be offended if I make a few remarks on his pet set. I should be sorry to damp the ardour of his company in anticipations formed under such auspices. Presumptive he will permit my saying that it is not a prevailing fact that every gossan ride a good horse, under which mineral has been wisely expended. I have seen gossan where I would not put a shilling out, and have seen what might be found underneath—a "keenly" gossan does ever tempt the miner to prognosticate reward for expenditure and labour. It is true Old Treburget is handy to this locus in quo, but I have yet to be informed that she has ever enriched her adventurers, although I do know she has lessened many a purse, and made many a Cockney wince for his temerity in meddling with her.

I should indeed rejoice if Mr. Ennor should prove himself a prophet in regard to Pengenna, because a lucrative mine would give much labour, and the tradesmen in its vicinity would feel the benefit. This happy prospect I fear is in the distance, and that Mr. Ennor's pet El Dorado will prove it so, though he give his wondrous skill, and fork out his rhino with a free hand. Doubtless he will ask why I presume to impugn his judgment in this particular? I will tell him that I have known full well every part of the workings, both of Treburget and Pengenna, for many a long year, but I have never seen the flattering indications of wealth in either, especially the latter. Some 40 years ago, in my young hour of speculating mania, I thought well of Pengenna, and that by a moderate outlay of money I should be rewarded by having a remunerative and lasting mine. Not liking, however, to trust to my then inexperience in mining matters, I called to my old experience and wisdom, and sought the advice of one of Cornwall's most acute and honest mine captains, Andrew Vivian. He viewed and took much pains in making himself well informed on the merits of the mine. What his report thereon was it is unnecessary to set forth, save this, that I became an adventurer, and have never to this day repented of the resolve. Since such period the mine has been under the management of captains, I presume, well versed in their vocation; and, saving some small quantities of lead and antimony, chiefly the latter, no beneficial result has rewarded the adventurers. The neighbourhood where Pengenna is situated is not a mineralised one, though, as in many parts of Cornwall, you find occasionally near the surface indications of mineral, yet abundant as has been the amount has been wisely expended in the locality to prove its worth for ore; and I believe, though it was backed by Mr. Ennor's skill and judgment, it would be in the end a barren adventure. In fine, I cordially assent to Mr. Ennor's doctrine as to caution in selecting mines, and believe if there were not so many quacks in mining science as that of others there would not be half the outlay wanted which is unfortunately proved requisite. I am not prejudiced to a

locality where no prosperous mines have already been discovered, though I should fight shy in drawing my purse-strings on the dictum of most men to prove its worth. I have learned from long experience that the district to speculate in is the one where mines have been, and still are, trump cards, and the neighbourhood has been proved to be greatly mineralised; and let me be shaking hands with granite. Such a locality, in my view, is more likely to lead to fortune than speculating in unknown lands.

Wadebridge, Oct. 20.

P.S. I notice much has lately been written as to the honour due to the late Mr. Trevithick, in relation to locomotives. Now, if I mistake not, my old friend, Capt. Andrew Vivian, has full right to this honour, for I believe this said locomotive was an emanation from the fertile brains of both, who one fine morning astonished the Camborne by steaming over the roads.—G. F.

#### GREAT WHEEL VOR MINING COMPANY.

Sir,—In my last note I took occasion to inform your readers interested in the undertaking, of the great saving already effected by the present management, and although certain changes in the board of directors, indicated to be desirable, were not, from some cause, effected at the last meeting, I have taken care to ascertain that further reductions in expenditure, then promised, have been faithfully carried out, and that every anxiety is evinced by the managing director to reduce expenses, as far as is consistent with an energetic prosecution of the enterprise.

Information is not now, as formerly, withheld from enquiring shareholders; free access to the books and accounts is now readily granted, and every person who has invested his money may, under the present management, obtain, upon application at the office, full particulars of the present position and circumstances of the mines. This, at least, is fair, candid, and honest dealing towards the proprietors.

Although the realities yet fall very short of anticipations, and the prospects are constantly alternating between sunshine and fog—now cheering, now gloomy—we are arrived at a point, the bottom of the mine, requiring a concentration of energy, and the close inspection, in order to ascertain, in the shortest time possible, if there be sufficient to warrant a continuance of the costly (though greatly diminished) outlay now incurred.

It is very satisfactory to know that the directors have already, most judiciously, stopped expenditure upon many of the unproductive parts of the mine, and directed their attention exclusively to those which are, or likely to be, profitable, so that, as far as practicable, the returns may be brought to approximate the costs. But should more money be required, it is to be hoped the directors will come boldly before the shareholders and state their position, not permitting arrears to accumulate and then resort, like their predecessors in office, to the illegal, though convenient, course of effecting loans. I trust rather that the present managing director will pursue to the end the straightforward manly course which has hitherto marked his career, and whether the result of the undertaking be success or failure, he at least will be entitled to the grateful acknowledgments of every shareholder.

ONE OF THE FIRST SHAREHOLDERS, WHO PAID FOR HIS SHARES IN 1853.

#### WESTERN AUSTRALIAN COPPER.

Sir,—You have been already informed of the discovery, some two years ago, of two copper mines in the northern portion of the colony of Western Australia, producing a liberal supply of ore, of a quality which has often been declared by competent judges to be superior to that of the far-famed Burra Burra Mine of South Australia.

By the Australian Mail, yesterday, I have received my file of the *Inquirer and Commercial News* of Perth, Western Australia, from the copy of which, bearing the date of July 14, I take, for your information, the subjoined report of an assay of the ore, made at Adelaide: 468 tons were lying ready to be shipped on board the *Lord Raglan* for England at the date of the last advice. The *Mercury* Lead Mine, in the same colony, is giving forth great promise to its workers. ALFRED ANDREWS.

"According to a letter received from an experienced assayer in South Australia, it seems that our copper ores are richer than those anticipated. The assay of four samples from the Yanganooka and Waverneokas Mines gives the following results:—No. 1, yellow sulphuretted, 31½ per cent. copper; No. 2, sulphate and carbonate, 33½ per cent.; No. 3, crystallized grey sulphuretted, 72 per cent.; No. 4, grey ore, 48½ per cent. In sample No. 1 there were 2 ozs. silver to the ton; in No. 2, a trace of silver; and Nos. 3 and 4, 14 ozs. to the ton. The largest of these quantities is too small to pay for extracting. The assayer, Mr. R. W. Rodda, speaks highly of the samples; and with reference to No. 3, states it to be the richest sulphuretted he ever met with. He considers that, in all probability, a rich ore of silver will be found in the same locality, and when we bear from every quarter reports so favourable of the value of our ores, and of the capabilities of our mineral district, we are justified, notwithstanding the proverbial uncertainty of all mining speculations, in entertaining the most sanguine anticipations with reference to the future of the northern district."

#### Meetings of Mining Companies.

##### CATHERINE AND JANE CONSOLS MINING COMPANY.

A special general meeting of shareholders was held at the offices of the company, Adam's-court, Old Broad-street, on Tuesday, Mr. W. J. Dunsford in the chair.

The circular convening the meeting having been read, the CHAIRMAN said the object of the meeting was to report on the number of shares liable to forfeiture. He begged to call their attention to the fact that they were divided into two classes. There were 1616 shares upon which amounts varying from 2s. 6d. to 7s. 6d. had been paid, and which formed part of the 6000 additional shares authorised to be issued at a special general meeting, held on June 8, 1857. There were also 783 shares upon which 4s. only was due, and the question they had now to decide was whether they would make any difference between the 783 only owing 4s., and the 1616?

A SHAREHOLDER: Are any of the holders likely to pay?

THE CHAIRMAN said they had no reason to suppose they were likely to pay, inasmuch as they had received the notice, but he would guarantee the 783 shares to fetch what was owing upon them. He held in his hand a proxy from a large shareholder, and was requested by him and another, also not present, to propose that all the shares in arrears, amounting to 2699, should be forfeited, and that 1616 of such forfeited shares should be merged for the benefit of the company, and that 783 should be paid by public auction in the usual way; and it was his own opinion that this was the best course to adopt.

Some discussion ensued as to the power of the company to dispose of the shares, and the means of disposition.—Mr. HANCOCK (Hancock and Sharp), the solicitor, suggested that the whole of them should be forfeited in the first instance, and the disposition of them should be considered. A resolution was ultimately adopted, that the shares on which the call of 2s. 6d. made on March 31, remained unpaid be declared absolutely forfeited, in pursuance of the 15th rule of the cost-book.

THE CHAIRMAN, in answer to a question, stated that at present there was a balance in hand of 334l., which would be augmented to about 500l. by the sale of the before-mentioned 783 shares, at 4s. per share.

Mr. CALLENDER, in answer to a question, observed that the ultimate prospect of the mine was of a very satisfactory character.

Col. BATHURST hoped that, however much they had to thank Mr. Brown for his advocacy of money, and Mr. Dunsford for his management of the mine, no misrepresentation of the value and prospects would be made to effect a sale of its shares. Some time ago he went to a broker who was then advertising for sale shares in the Catherine and Jane Consols, and he recommended this mine as a good channel for investment; but he was sorry to say he did not find that representation carried out, for, in fact, the mine was in an insolvent state; and as the mine was under the Limited Liability Act a call was not legal, and, in fact, the lease, which was then a liability, was represented to him as an advantage. He hoped, therefore, no misrepresentation would be made, for if so the mine would suffer in the market, and disaster be brought upon all concerned with it.

THE CHAIRMAN considered this matter altogether irrelevant to the object of the meeting, and requested that the subject should be dropped. He believed that Col. Bathurst had had no cause to complain of misrepresentations from the present management.

Colonel BATHURST said that he certainly had not; and felt great pleasure in expressing his acknowledgments to the Chairman for the candour and courtesy with which he had always been treated in his office.

The following resolutions were then unanimously carried:—"That 783 of the shares declared forfeited be sold by public auction, by Mr. T. F. Thomas, at Garraway's Coffee-house, on Thursday, Nov. 11, at 1 o'clock, and when sold transferred to the purchasers by the committee, or on behalf of the company."—"That a special general meeting be called to be held on Friday, Nov. 12, at 12 o'clock, at 5, Adam's-court, Old Broad-street, for the purpose of disposing of the 1616 forfeited shares not resolved to be sold, by merging the said shares, and declaring that from the time of such shares being merged the shares in this company be and consist of 7146 shares."

A vote of thanks to the Chairman terminated the proceedings.

NOTE.—Since the above report was written, our reporter has ascertained, at Mr. Dunsford's office, that the committee had, on application to that effect, and on receipt of the call due on them, restored 393 of the 783 shares forfeited, so that 390 shares only remain for sale by auction.

#### LONDON AND VIRGINIA GOLD AND COPPER MINING CO.

An adjourned extraordinary general meeting of proprietors was held at the office of the company, Lime-street, on Monday, Mr. J. WARREN in the chair.

Mr. ANDERSON (the secretary) having read the notice convening the meeting,

THE CHAIRMAN said, that although at a previous meeting a resolution had been passed to dissolve the company, the directors did not think it advisable that that resolution should be confirmed, but that it should be continued, to afford greater opportunity to sell the mine and the property belonging to it. Every advice they had received from Mr. Baker, Jun., and others stated that the mine was doubtless of considerable value; but they were in that position that they had no money to carry it out. Mr. Clement, who unfortunately was not present, was sanguine as to successful results if spiritedly prosecuted. He said that it would cost 15,000l. additional capital to work the mines; and, therefore, with less than 10,000l. it would be utterly impossible to carry it out. About thirty shareholders had paid up the whole of their money, but there were others who had refused to do so. The directors have, therefore, concluded that the company should not be dissolved. He was sorry that he could not at present hold out the east hope for any return to the proprietors.

The Chairman further said, that if any of the proprietors had any friends who wished to purchase a good mine, he thought this stock at high any time in Virginia or in America. He had never heard anything against it, provided the right share could be met with, and thus come upon the vital part.

Mr. BEDFORD asked in what position the proprietors would be placed if the resolution passed at a previous meeting, to dissolve the company, had been confirmed?

Mr. BAKER (solicitor) said, in that case very serious difficulties would be found in disposing of the mine. Were the company dissolved it would, of course, cease to be a corporation, whereby considerable legal difficulties would ensue, and great expenses be incurred.

In answer to a question from a proprietor, the CHAIRMAN said that to compel people to pay if they were not willing would involve the directors in considerable litigation.

A SHAREHOLDER: But the plan would be to commence with the greater defaulter.

THE CHAIRMAN: Of course if any gentleman would enter into a bond to pay certain expenses, that would be a different matter; but he (the Chairman), as one of the directors, should oppose it, for he had much rather put up with his present loss.

A vote of thanks to the Chairman terminated the proceedings.

PATENT OFFICE LIBRARY.—The Commissioners of Patents have just added to their free library, amongst many other useful and interesting works, the *Laws and Customs of the Stannaries in the Counties of Cornwall and Devon*, by Tho. Pearce, gent., published in 1725. It contains the first charter granted by Edward I. for erecting the tinners of Cornwall and Devon into a corporation; the laws, &c., passed in the reign of James I., Charles I., James II., and Queen Anne; a complete treatise on the Laws of the Stannaries, the power of the Lord of the Manor, the rights of the Duke of Cornwall, the customs of the Stannaries of Blackmore, and much other information relating to the time-honoured privileges of the Stannaries. The work will well repay perusal by all connected with mining.

#### GOVERNMENT SCHOOL OF MINES.

On Monday, the lecture, by Dr. PERCY, treated of "Certain Combinations with Metals." Carbon had a great influence on various metallic bodies; the mode in which they could separate this was to melt the oxide with a common flux. Pig-iron in general contained about 3 per cent. of carbon; this is got rid of in the puddling process, principally by the influence of atmospheric air; but on this subject he should speak further when he came to the reduction of iron. With regard to metals and silicon, this last had a most marked effect on the physical aspect of metals, and it was not until very lately that they had acquired any great practical knowledge on the subject. This was a most remarkable metal; zinc and aluminum have a great effect on it. The influence of silicon on copper and iron is worthy of note, and it is said to give to the latter metal the property of red shortness. An alloy of copper and silicon was here shown, which had the appearance of silver. In a small quantity silicon does not affect the colour of copper, and in some cases it is not unlike the metallic alloy of tin and copper, denominated bronze. If silica, charcoal, and copper, finely divided, and the last not allowed to fall through, are heated at a high temperature, silicon will be obtained. The same may be observed with regard to pig-iron, silicon, and platinum; heated alone there will be no visible effect, but take carbon and platinum, and heat them in contact with silicon, and an alloy will be produced. A specimen of this was shown and described. They would now come to the separation of the silicon from the silicides; this was either done by heating with access of air, or by heating silicon with metals and bodies containing oxygen, and to the temperature. With regard to the combination of metals with nitrogen, he should not detain them at any great length; this plays, however, an important part in metallurgy. The metal found in the blast-furnace, so long taken for copper, and proved to be titanium, is greatly influenced by nitrogen. On this subject he could recommend, among other works, to their notice Gmelin's *Handbook of Chemistry*. Next, of metals with chlorine. The affinity of metals to chlorine is very great; they had action of heat upon chlorine. Some of the metals volatilise without decomposition, such as the chloride of mercury. Others are only partially decomposed, as the chloride of copper. Some are entirely decomposed by heat, and under this category he would instance the chloride of gold. The degrees at which this fusion was very variable, and on this they might read with great utility Plattner's process for the reduction of this metal. Gold is rendered soluble by chlorine decomposing water.

The lecturer then proceeded to treat of the various combinations with chlorine, such as the presence of carbon with chlorine; the digesting with *aqua regia* or nitro-muriatic acid, which is employed with the chlorides of gold and platinum; the treating of chlorides, which directly give up their chlorine, dissolving the metal in nitric or sulphuric acid, and throwing it down as a chloride; thus the chloride of silver is formed. The common action of chlorides upon sulphides was then noticed, as well as the action of sulphides upon sulphides. The reduction of chlorine by heat alone, as in the instance of chloride of gold; by the aid of another metal, as was the case with chloride of silver; with an acid, an example of which could be cited with zinc; heating in hydrogen, as the chlorides of silver, cobalt, and nickel; others not, as the chloride of manganese. Dr. Percy then detailed the different methods by which various reductions could be effected. In some cases organic matter could be employed. By melting the chloride of silver with resin, the chlorine would be evolved in the shape of hydrochloric acid; while the metallic silver, in the shape of a button, would remain. There were other complex methods, such as that of the chloride of silver with potassium, either with or without the aid of carbon. Much might be said of the presence of cyanogen in connection with electrometallurgy. The first application of this was found out by Mr. Wright, a surgeon, of Birmingham, now some time deceased. He communicated his ideas to Mr. Elkington, and they are aware how successful he has been in the application of his patent. Mr. Wright had told him that the idea struck him, from perusing an old work, Scheele's *Chemical Essays*, that *laurum sanguinis* was useful in dissolving the scales of silver, and, much as they might be despised in modern science, in many of these old books there was a vast amount of information. He would now speak of the silicides; the nitrides and sulphides he should not allude to. He was not here to teach the chemistry; it must be presumed in that they were all pretty well grounded. Metallurgy might consider was the practical application of chemistry. Silica plays a most important part in many metallurgical operations, the bodies called slags being nearly all silicates. These consist of two species—the hydrous, as the zeolites, which contain water, and the anhydrous, which do not possess that property. In metallurgical operations we have only to deal with the anhydrous. We must not suppose that those which are reduced at a high temperature do not contain water—they often possess this, when others at an ordinary temperature do not; they are solid, crystallised, or amorphous, and of various colours, such as blue, green, and, in the case of the silicate of cobalt, purple; they are either fusible, imperfectly fusible, or perfectly infusible, at the highest temperature we can obtain in our furnaces; they are fusible according to their bases. Thus, lead slags are easily fusible, while those of zinc have the opposite qualification. Silicate of lime is not a fusible body, nor is silicate of aluminum, but if these two are reduced together, a more fusible silicate is obtained than if either were separate. All silicates, except those which are base-alkaline, are insoluble in water at the ordinary temperature. The silicates are decomposed, imperfectly so, or not at all, by the action of hydrochloric acid; all, however, are attacked by fluoric acid. Silicates may be decomposed by heat with carbonate of soda or carbonate of potassium, or at a higher temperature with carbonate of lime or baryta. Silicates may be prepared in the dry way with silica and the metallic oxide, as with cobalt, or from silica and a metallic oxide, by heating a mixture of the two at a temperature below that at which the silicate fuses. The lecturer then alluded to the neutral silicates, as well as the sequi-basic, the bi-basic, and the tri-basic, in which last the oxygen of the base was equal to the acid.

Slags were denominated by the Germans "schlacke," and by the French "laitier." In general they are silicates, though this is not invariably the case. The term occurs in both conditions are co-existent in the same slag—the outside will be vitreous, while the interior portion will be highly crystallised. Several specimens of the various slags were exhibited. The process of devitrification was then alluded to, and illustrations given of the difference between the rapid and slow cooling, and the French process of making glass by means of cylinders described. Sometimes a slag may have been perfectly definite, and be changed; in fact, become pseudo-morphous. An instance of this was in the case of the well-known substance called "bull dog," which was used for the purpose of making buttons to blast-furnaces. They had the peroxide of iron, which had no business to be there, introduced by the access of air. The amorphous slag may be divided into several varieties. There are the vitreous, the compact, the acicular, and those which are fine, like spun glass, and sometimes all these conditions may be found combined in one. Occasionally they are porous. The specific gravity of the slags depends, in a great measure, upon the oxides of the metals from which they are obtained; and the same, to a certain extent, may be said of their hardness and toughness. There are several which are excessively brittle; the toughness depends, in a great measure, on the slowness of the cooling. Some are so fragile that they can easily be broken by a small hammer, others resist heavy blows. They vary very much in colour, being blue, green, blue, red, yellow, and various tints. On the surface of several of these they would see blue, and occasionally great iridescence. The piece produced, accidentally formed, surpassed the richest colours prepared in any pottery. The composition of slags greatly differed. They principally consisted of silica, lime, protoxide of iron, aluminum, and not unfrequently manganese would be found occurring in them.

On Wednesday Dr. PERCY resumed his lecture. The component parts of slags in general were silica, alumina, magnesia, and lime. They were in many cases definite: first, there were those which had only one base; secondly, others which had two bases, such as the common slag, which contained a great quantity of protoxide and sesquioxide of iron; and, in the third place, there were slags which have a well-defined form. There are a variety which have an indefinite composition, and these are often mixtures of definite substances. They must not, however, confound the term mixture with combination. If they take granite, they will find that this is composed of three different compounds—quartz, felspar, and mica. Sometimes, from their appearance, copper ore slags are taken for porphyries; in this case the quartz, which gives it this appearance, is held in a state of suspension—these contain a great deal of protoxide of iron. When the ore is not well fused, the slag will be siliceous, and the siliceous globules of iron will be in the metallic sulphides, in many cases both the metal and the slag are tapped out together, the slag, which is lightest, floats on the surface, while the metal, from its greater specific gravity, descends. The slags are afterwards subjected to an examination; those which are free from metal are denominated clean; those having particles of metal are called foul, and sent back for remelting.

They would now consider the chief metallurgical operations. These were performed either under the pyrolytic or hydrous mode; in simpler terms, by the wet and dry way, and in some instances by the fusion of the ore. The fusion occurs in various states; some in a solid, but although this is in a metallic state, it is not in a pure state, though it may approach nearly to it, being sometimes alloyed with silver, and that in a considerable quantity. They had likewise metallic copper and silver. In metallurgical operations, they had, in the first place, the carbonates and oxides. The carbonates may be treated as oxides, as when they are reduced by heat the carbonic acid is evolved. The sulphides play a most important part in metallurgy, as is the case with lead and copper; they have the combination with arsenic, as arsenides, in which will be found nickel and cobalt; as salts, the chloride of silver, and the oxychloride of copper. Lead is occasionally accompanied with phosphoric acid, and from this substance we obtain the phosphate of lead. Ores are always associated with other matters, which are non-metallic; these are denominated veinstone, gangue, or matrix, and it is the province of the miner to separate these by the process called dressing, but it is not desirable that all this extraneous matter should be entirely removed, as they would find that in copper smelting the silica was necessary to extract the iron from the ore. The fluxes used were in general carbonate of lime, clay, oxide of iron, sulphate of barytes, and fluoride of calcium, or fluor-spar.

They had now to consider the various processes. There were those effected without fusion; these might be divided into two, as the separation of gold from metallic quartz by mercury direct and indirect without fusion, and in the amalgamating process the second, by the fusion of the ore, as in the case of the native silver at Kongsberg, in Norway, where it is merely run down; as was likewise the method with gold dust; the next a simple reduction with fusion, as in the instance of tin ore; thirdly, by a simple reduction with volatilisation, as practised with oxides of zinc; and fourthly, by a complex method with fusion, as used with copper ore. The term smelting is derived from the German, and is either applied to a single process, or a series of processes, by which a metal or metallic compound is separated by fusion from its ores. In the instance of copper smelting this has to be done by several successive operations. In arsenical and nickeliferous ore they have to follow the two modes, both the dry and the wet. In the dry way smelting was carried out in two sorts of furnaces—the one called the blast, into which it was necessary to propel the wind; the other, the reverberatory, where no wind was propelled, but a chimney or stack was erected with a draft sufficiently strong for the purposes to which it was intended. If they were to take pulverised quartz and heat that, they would find that there would be only globules of gold; but if they take carbonate of soda with the quartz it would make a flux—above a transparent glass would be found, while the gold would sink to the bottom. Although carbonate of soda was a good flux, yet it was very expensive, and probably would not be so commercially employed in large operations. There were various other substances which could be used for this purpose—such as lime, clay, or oxide of iron. In the case of auriferous quartz there has been no reduction. Reduction means the taking of one metal from another in a state of combination, and in this case it is a misnomer, as the gold is not in combination with anything. In auriferous quartz you would not be able to know this unless you had operated upon every grain of the quartz. In this instance the carbonate of soda



would be dominated the flux, and the compound of silica and soda, slag. These latter may be found in several ways, sometimes under the process of oxidation, as is the case of the reduction of pig to wrought-iron during a peculiar process. In the smelting of sulphides, the metal in the first place is subjected to an operation to get rid of the volatile or gaseous; in the case of copper, where the ore contains about 9 per cent., the rest of the substance is iron pyrites, silica, and other matters. When these are tapped out together, at the top you obtain a slag, and underneath a sulphur, about 35 per cent., being the average of the metal in pure copper pyrites. This is technically called in English, metal; in French, matte; and German, stein. In one operation you may have sometimes three things, as in the smelting of galena with iron: on the top there is silicate of soda, in the middle sulphide of iron, and the metal at the bottom. Occasionally there are four, and this is when speiss (a compound of arsenic) is used. They will then have—first slag, then matte, followed by speiss, and lastly metal.

The term roasting which is used is nothing in a culinary sense. These differ from each other as they are practised, either by heat, or with heat aided by the access of air; in simpler words, to effect oxidation at a high temperature, roasting is used with clayey iron to get rid of the carbonic acid, with lead to expel the sulphur. There are likewise certain complex actions, as in silver, where chloride of sodium enters into chloride of silver. Calcination is sometimes used as a synonymous term. Sulphate of iron is largely calcined for the purpose of polishing glass. The mode of calcination is performed in several ways. Firstly, by piling the ore in large heaps; this is a very simple method, as some of them will burn for ten months when ignited; the sulphur which they contain is the fuel. Secondly, in reverberatory furnaces the clayey iron ores are calcined in heaps with small coal, which is a very inexpensive fuel. The calciner, of which they had a section before them, was a reverberatory furnace, with a bottom of fire-brick. The operations to be conducted here required great care; too much heat must not be placed on the mass at first, or it would be apt to clot, and become pasty, so that it would be requisite to reduce it a second time. Roasting may take place alone, as is the case with copper, or by the introduction of other matters, as practised with silver. The rapidity of oxidation will depend upon the surface submitted to the action of heat and air. With regard to distillation, the reduction of zinc is one which comprises that and volatilisation. The lecturer then described the methods of distillation per *ascensum* and *descensum*. There was another process, called lixivation, or eluviation. Take copper which contained silver; melt this with about three times its quantity of lead, and they would obtain nearly all the silver, while the copper would remain a porous mass. They must be careful, however, not to heat this too much, it being necessary that lead should be so heated as to flow, at which degree copper would not melt. Sublimation was used with arsenic; this was heated with access of air, and arsenious acid formed. The process by which this was produced was then described by Dr. Percy. In the construction of furnaces several clays were used: these were divided into two classes—refractory and non-refractory. In furnaces where it was necessary a high temperature should be resorted to, the refractory were always employed; the best was that of Stourbridge, which possessed a dark grey colour, but when burnt was yellow, and this was used in the manufacture of steel pots. The principal component parts of these clays were silica and aluminium, nearly always accompanied with iron. All clays are hydrated: this clay has been found by analysis to contain—silica, 51.8; alumina, 30.4; protoxide of iron, 4.14—the less of this they have the better; magnesia, 0.5; lime, no sensible trace; water and organic matter, 19.11. This had been tested by Mr. Hoell, of Holborn, and found to be very good. With regard to clays, he would refer them to a work written by Brignault. The clay used in their laboratory was obtained from Tunworth, about 17 miles from Birmingham, and its contents were—silica, 50.2; alumina, 32.7; these were the two useful components; they had, then, sesquioxide of iron, 3.2; a trace of oxide of manganese, lime, 0.30; magnesia, 0.44; potash, with a trace of soda, 2.22; water and organic matter, 9.69. These they had found very durable, and they would further consider the other varieties of clay in a subsequent lecture.

**MINING MARKET.**—We have received the following communications:—  
**MR. JAMES CROFTS.**—In the face of a continuous decline in the value of money, only to be noticed as a relative question, the Bank of England still adheres to the rate of discount at 3 per cent., from which it must be inferred that the authorities have motive peculiarly pertaining to the question of keeping both trading and speculative operations in a sound state, since a course of action which deprives them, as must be assumed, of a large amount of profit would scarcely be continued almost in opposition to policy upon ordinary grounds. It is probable that the public press was never more at fault in monetary speculations than in labouring to discover a cause for the "reserve" of the Bank in this matter, which even the "combined talents" fail to penetrate. It must be observed that the railway traffic is not in so satisfactory a condition as could be desired and that certainly expected by this time, so that the prospects of the railway are not so confidently predicted some time since; but, on the other hand, there has of late been enough of movement to indicate a tolerable certainty that the last traces of the crisis are rapidly passing away, of which the best indication, if not proof, is that every description of raw material for manufactures has advanced in price in all markets, and more particularly in our own; and in proportion as stocks on hand are cleared will be that recourse to the replenishing process which will again bring our shipping interests into activity, and convey the favourable impulse to manufactures which alone is wanting to restore the country to a sound state of prosperity.

Between the antagonist elements now contending upon the mining market there exists, the writer is happy to say, little sympathy; and but for the losses which speculators have sustained within the last twelve months by the depreciation in prices and other causes, the market would have to be described as in a really healthy and sound condition. The purifying process, that of rooting out all worthless concerns, which has resulted as a consequence of the depression, has produced already marvellously good effects, and to such an extent, that a mine share of doubtful value, either openly or by neglect, so utterly repudiated that the paucity of new schemes, good or bad, is a remarkable item at the present moment in mining statistics. Some care, however, is still necessary in not relying too implicitly on the representations of parties directly interested in mines, who, without any positively evil intention, insensibly lead on the speculator to an investment in stock which it is thus easy to acquire and very difficult to realise; although it must be understood that this reasoning applies only to mines, or "setts," in such unknown or untried districts as render exact and reliable information on their real value a very difficult matter to accomplish, and is, therefore, alluded to in contradistinction to mines prominent on a map of known and tried localities, the investing in which may be said almost to remove all responsibility from parties recommending, even if themselves large shareholders, many of whom, as a class, are individuals possessing mining knowledge, energy, and the spirit of enterprise in the degree which originates the remarkable impetus given to mining in the present day. These remarks are penned in the hope that the public, to whom the present state of the market offers such advantages as ought to attract them, may not fall into a snare for want of a finger-post; and in considering the merits of any mine, new or old, a further caution is tendered, to look particularly to the number of shares in which it is constituted, and, as a rule, to give the preference to those in a few over those in many; a multiplication of the number by the price asked for the share, and a comparison of the total value with some dividend, or other well-established mine will, of course, give the data as to value.

A most satisfactory meeting was held of Catherine and Jane adventures, on Tuesday last, for the purpose of dealing with the shares in arrears of calls, which was carried out by resolutions to forfeit a portion, and resell them by public auction, and allow the remainder to merge into the mine, by which latter proceeding, if confirmed by a future meeting, the number of the shares will be much lessened. The financial condition of the mine by these changes is much improved, there being a cash balance in prospect of about 500l. The shares may be stated as of double their market value two months since, and the success of the mine now depends upon the production of lead ore, on which point, on the authority of the chairman and local expert, a dividend mine is predicted, as was stated at the meeting, in 1889. From North Miners' material improvements are announced in the following form:—"In the bottom of Jones's shaft the lode is solid—6 inches wide. In the end of Lloyd's level there is a flat of ore 9 inches solid." These items are considered by the managers as of great importance in estimating the future value of this property. The shares have entirely recovered the late depression, and orders now arriving for them are too limited to lead to business. Improvements in the value of non-dividend shares during the week must be noted in West Grenville, North Downs, Bryntail, East West Russell, and Wheel Kiln. The latter mine is in 40th shares, with 8s. 6d. per share, and has so far in the workings up to such a high level, marked success as to render it a speculation of the first order. Bryntail also continues an upward course for the shares, and have advanced at least 30s. per share during the last few days—buyers. A declension in value, and in some cases rather serious in amount, has taken place in Sorridge Consols, North Bassett (the reserves of ore being greatly reduced), Harriett, Edward, and Great Alfred. Vale of Towry are stationary, and Lady Bertha have fluctuated only, probably, to settle down into a low-priced share. In this enumeration, whatever the state of the share, there is business doing, and in a portion of it a large one. The writer pays much attention to the progress of Old Tolgus, from a belief that the shares, and more particularly at their present comparatively low price, are worth immediate attention. A large business is doing in them, but chiefly of a private character, in which the price obtained does not transpire. The latest report is significant of success in the "hope that there will be soon 30 tons of copper ore for sale, and they are breaking a great deal of blende, and preparing some for dressing." Of the class of dividend mines the following improvements in value have taken place during the week:—West Caradon, 20l. per share; Granbler and St. Aubyn, 5l.; Providence, 5l.; Margaret, 3l.; Mary Ann, 14l.; Trelawny, 1l.; Wheel Bassett, 10l.; Carn Brea, 3s.; Wheel Clifford, 30l. Such advances, indicating a general rise in the value of tin, copper, and lead. On inspecting a list, obtained from the Journal, of 20 dividend mines now in full and constant distribution of surplus profits, the following rather astounding results are arrived at:—Upon these 20 mines there has been paid per share in calls 466l. 10s. 11d.; in dividends, per share, from first to last, 4860l. 10s. 3d.; whilst at present prices the total value of them as they stand to-day is 1,781,792l. 10s. Admitting that these mines are a selection from a longer list, and consequently much beyond the average of dividends and value, the result is not the less appreciable when comparison is made with any other class of investments in which the public are accustomed to deal.

An interesting attack, resulting from some remarks in the Journal of a fortnight prior to the meeting, a very large business has been done upon the writer by Mr. S. Richards, of Stoke, Devonport, to which a reply is given in another part of the Journal of this day. Mr. Crofts disclaims, in his "notes" on mining affairs, and such collateral facts as grow out of them, any desire at any time to give offence to individuals. He does not, in fact, attack individuals, but modes of business, and then only when they appear palpably to militate against the interests of investors in mines.

**FROM MR. RICHARD TREDINNICK.**—During the week considerable business has been transacted in the following shares, and the market generally maintains a firmer tone, with, in several instances, advanced prices. Bassett shares are buyers at 205l.; West Caradon, from 100l. last Friday, now stand at 110l. to 115l.; Bryntail, buyers at 5l. to 6l., and the mine looking well. Besore, buyers 5l., with an absence of sellers, even at higher quotations. West Grenville in demand at 9s. per share: exceeding 1000 shares are "beared" in this company, and every effort is made to depreciate the property. The latest report on the Messrs. Taylor and Sons state end to be worth 14l. per fathom; and as 2s. 6d. per share will defray the expenses of erecting an engine, and the ore ground now laid open west of the cross-course must be about 30 fathoms in length, a short time only is required to render this mine second to no young progressive mine in the district. West Bassett is improved in one or two important points. West Seton shares unfortunately (as the prospects are equally good) are heavy, and stand at lower quotations. Mary Ann and Trelawny shares are firm. South Caradon, on the contrary, are more freely offered. Margaret, Providence, and East Providence have been in good request, and rule higher. Margery, on the contrary, stand at 12l. 10s. prior to the meeting. A very large business has been done in the Old Tolgus, at 25l. to 30l. per share; this property is rapidly developing, and, according to usual practice, every effort is made by brokers unconnected with the adventure to depreciate the stock. Pendren Consols stand lower; still the prospects are good; time and outlay will secure success. Buller and Bassett lode is improving at shaft. Great South Tolgus, South Tolgus, Bassett, Dolcoath, Carn Brea, Par Consols, South Caradon, Providence, Mary Ann, Trelawny, Botalack, South Frances, and West Bassett are all good and sound dividend companies; whilst Tolgus, Bryntail, Old Tolgus United, Buller and Bassett United, Besore, Consols, West Penryn, Pendren Consols, Ury, West Grenville, North Bassett, Mill, and East Providence, are the first progressive non-dividend adventures on the tape, possessing chances of success far in advance of risks incurred—that is, prospects of increased market value, without corresponding hazard as regards dilution or market depreciation.

## MINING NOTABILIA.

[EXTRACTS FROM OUR CORRESPONDENCE.]

**The rise in the Standard, small as it was, gives indications of a move in the right direction. The quantity advertised for sale on Thursday next is unusually small, being scarcely 3000 tons. We are assured many of the large copper-producing mines are devoting their energies to the production of tin, if they contain that mineral, which is frequently the case. The tin is found to fetch a better price in proportion. The machinery for its manipulation has been so materially improved within the last few years that tin dressing is not that tedious and expensive process it was formerly; this has led mainly to the difference. Indeed, experience shows that ore dressing is far from perfection, and that there is ample scope for the ingenuity of our skilful mechanics and artisans. No subject we know of, indeed, offers a fairer field for enterprised talent, nor is there any greater desideratum to be effected. We are glad to learn that several new projects are about to be tested, and with the prospectors success. We hear of a valuable plant being introduced into Cornwall from Wales.**

**St. Agnes.**—It is pleasing, at all times, to record signs of improvement, which, although little for the present, may be the harbinger of better things. In this district for some time a great gloom has been hanging over us, the downward tendency of minerals of all descriptions not, by any means, giving us better prospects, but possibly complaints are at the present moment too general throughout the county, and we, observing the smallest glimmering of brightness amidst depression, feel happy in recording it. There is a mine having just commenced, called PENNALS, north of Wheal Kitty, bordering on the sea, which has not been wrought for at least 100 years; and when it is considered the position of the mine, it is marvellous that it has so long remained dormant. The number of lodes, its congenial strata for tin, and the known dip of all minerals to the east, point it out, without too sanguine expectations, as the legitimate speculation of the district. On Saturday last the celebration of the commencement of working the mine was given at Wheal Kitty account-house, under the able presidency of Mr. Newton, the purser. The preliminary toasts having been gone through, "The Adventurers" were given, and responded to by Mr. Hinchins, who was delighted to have the opportunity of seeing his friends under such favourable circumstances as opening a mine which all have been taught to believe is a speculation of the highest promise, fraught with the greatest importance to the district generally, being surrounded with the richest of mines, going back hundreds of years, its proximity and juxtaposition with the Penberro Consols, the Pink, Wheal Kitty, and the Blue Hills, leading to the belief that this mine will ultimately take its stand among the leading ones about. Capt. Edwards, the manager, and Capt. Arthur Gripe returned thanks as agents of the mine, each expressing a hope of its future success. Mr. James, the engineer, to whom the greatest credit is due for the dispatch and putting up the engine (a 36-inch cylinder) to work, as well as the smoothness and evenness with which it at once moved, returned thanks for his health being drunk. Capt. Arthur Gripe replied to the toast of the "Neighbouring Mines," and in so doing gave the opinion of old men on Penbals, which has been handed down to us traditional, its geological position, and its peculiar vein formation being of extraordinary interest, offering to the adventurers a mine of rare excellence, so far as speculation is concerned, and of which, therefore, his opinion is decidedly favourable. The "Doctors of the Mine" was responded to by Messrs. Lambick and Whitworth. "Success to Wheal Kitty" was given, with an earnest desire of its continued prosperity, which was replied to by Capt. Nicholas along with Mr. Stevens, the accountant. Mr. Newton, jun., replied to his health being drunk, offering some observations on the peculiar geology of the district, which led to a most animated and practical discussion, having a particular reference to the stratification, and its bearing on the vein formation, wherein lays the genius of mining.

**BORRDALE BLACK LEAD MINES (Cumberland).**—These celebrated mines were opened on Wednesday, by influential company, formed under the Limited Liability Act, with a capital of 20,000l. in 5s. shares, fully paid up. The appearance of the mine generally presents the most encouraging prospects of its yielding sufficient black lead to meet the demand of the pencil manufacturers, who are eagerly anxious to purchase the lead at 4000l. per ton, they having during the last eight years been compelled to use a foreign article, of an inferior character, rendering it almost impossible to secure a good pencil.

**WHEAL ENMA (Buckfastleigh).**—There is a great improvement in the lode at the 46 driving west, and the ground ceased from 5l. to 50s. per fathom. The engine-shaft below this level presents the most encouraging prospects for the 58, both east and west, which depth will be reached by the end of November. Altogether this mine never gave such proof of great productiveness in deep levels as at present. The finest course of yellow copper ore ever seen in the mine is opened in the bottom level, in whole ground, and is a depth of 60 fathoms. This is east of the engine-shaft, and a rise which is up 5 fathoms, from which three men will produce 30 tons of rich ore, and yellow ore this month, proves as far as the continuance of the ore, and which appears to be a new shoot, with every prospect, as far as practical judgment can predict, of holding to add, as in the case of the western shoots. If this opinion should prove correct, and each level to add should reach it by 7 fms. driving, as in the case of the 46, it requires very little foresight to predict that the mine will very shortly be in the dividend list; and as it could long since have gained that position, if simply a dividend or two were all that the manager aimed at, it may be fairly inferred that when its name does appear in that list, it will carry with it a conviction to all its shareholders that the sum placed opposite its name will be uniformly increased to their entire satisfaction, as well, perhaps, as to the surprise and envy of some of those who have indulged in the erroneous belief that the silent contempt of the manager to certain disparaging remarks in the *Mining Journal*, arose from weakness in the resources, or want of confidence in future.

**PHOENIX MINES.**—In our Obituary of Aug. 7 we recorded the lamented decease of the late Capt. Samuel Seccombe, of these mines. We have now the pleasure of notifying the appointment of his son, Capt. James Seccombe, as his successor in the management. From what we learn, we believe the appointment highly creditable to the judgment of the proprietors, for a more meritorious young man, or one more fully competent to the duties, from practical knowledge, habits of business, and propriety of conduct, could not be found.

**DEVON NEW COPPER MINING COMPANY.**—We understand that a mining company under this title is now in course of formation, for the purpose of developing some of the mineral wealth in the Ashburton district, under the auspices of several gentlemen of considerable wealth and standing.

**TALYBONT.**—During the late pressure many mines, on which a large amount of capital had been expended, were abandoned, some of which have since been wrought by parties of working miners in the neighbourhood on tribute; and it is gratifying to know that in all cases the men have been amply remunerated for their trouble. A very small interest, in addition to the sums already laid out, would suffice to put them into a regular state of profit; and it is to be hoped they will not long be dormant, as the miners in the neighbourhood are willing to assist in their resuscitation, and a little help from other quarters is now all that is wanting, which, no doubt, will soon be found.

The rich silver ore discovered at NORTH DOLCOATH is marvellous of that metal, with native silver. The lode varies from about 6 in. to 18 in. wide. The capels of the lode contain silver to the amount of 10 cwt. to the ton; this is the lowest assay yet given from any samples, and the highest we published in our last week's Journal.

**AT OLD TOLGUS, the 32 east, on the south lode, has considerably improved; it is now producing 14 tons of copper and 1 ton of blende per fm., and still improving. The new lode met in the 32 producing 2 tons of copper and 2 tons of blende per fm. Showing that a cross-cut will be found to intersect the lode at the 43 north to intersect it; the prospects for deeper levels are of the first order. The shaft and cross-cut are being prosecuted with all possible dispatch to the important junctions and lodes at deeper levels.**

**THE GREAT HEWAS UNITED MINES** have much improved during the last fortnight; the 56, the 66, and the 76, in the west mine, are opening out good tin ground; and in the east mine the lode is getting clear of the slide.

**EAST WHEAL BUSY.**—This sett is about to be spiritedly worked by a cost-book company, with a capital of 10240l. The mine is situated in the parish of Ken, and is held under licence granted to the machinery, and the mine is in a position to be worked in a direct parallel with many mines which have returned large quantities of copper and tin ore. The mine was worked about seventy years ago by a few poor men to the depth of about 8 fms. from surface for tin, large quantities of which of excellent quality are said to have been raised and sold. They are now breaking some excellent tin ore from the back of a cross-cut in the adit level about 15 fms. deep. The West Cornwall Railway passes through the sett, thereby affording every advantage for the carriage of materials to and from the mine. It is believed that the necessary machinery, pit-work, &c., can be erected and the mine drained, and a good lode of copper and tin ore in a direct parallel with many mines which have returned large quantities of copper and tin ore, and who describe the prospects as highly encouraging.

**WEST CRINNIS AND REGENT.**—As the levels are being cleared, important runs of ore ground have been laid open. The ore sold on the 15th inst. weighed off at 7000l. for the two months. There is every prospect of a great increase in the returns, as soon as the tramroads and other appliances can be made available in the levels for use.

**NEW TRELEIGH.**—The present prospects of this mine are of a more encouraging character than has been presented for some years past, and there is every reason to anticipate that the mine will be in a paying position before long. The 60 east is now 5 fms. east of Tarry's shaft, and the lode is about 2 feet wide, 1 foot of which is solid yellow ore, making a production of 16 per cent. The lode in the end, from back to bottom, will average 3 tons per fathom, and worth 20l. per fathom; large streams of water are issuing from the end, which is strongly mineralised. The shaft is down 6 feet below the 60, and the lode is producing 3 tons per fathom, and the ore is improving in quality as they sink. At the 40 a cross-cut is being driven south to intersect the Great Fortune lode, which is daily expected to be cut, and whence great results are anticipated. Under these favourable circumstances there is every reason to believe the proprietors will be remunerated for their forbearance and perseverance.

**GERNICK.**—The prospects here have been much improved, through the intersection of a large cauter lode in the 38, the ground is altering, and it is considered that when the elvan is passed, and the lode opened on in the kilias, the lode will be found productive, as is being verified under similar circumstances in Trevelo Mines.

**HUNTINGDON TIN MINE (Buckfastleigh).**—Great expectations are entertained of the returns of tin from this mine. The lode, for 40 fms. in length in the bottom of the level, produces superior tin, and in one part is very rich. The deeper levels will be looked forward to with great confidence as to the results, as the practical opinion of all is in favour of a great and lasting mine. All the pumps for the next 10 fms. are upon the mine.

**PEDN-AN-DREA MINE.**—A poor fellow met his death at this mine on Friday last. He was at work in a level with his father, and a large piece of rock fell from the roof of the mine, and killed him. The man was an excellent character for industry and sobriety, and had been building a house for himself, purposing to have been married in about three weeks. The misfortune appeared to have been entirely accidental, no blame being attached to any person connected with the mine.

**CARN BREA MINES.**—A splendid lode has been cut in the 90 fm. level: the lode has been driven on 4 fms., and is 10 ft. 4 in. wide. This is a great discovery, as the ground is in the middle of the surface. From the appearance of the copper ore, a run of tin ground is certainly below, as at the neighbouring mines—Wheal Bassett, &c. A close examination of this mine shows the Pedn-an-drea lode to be one of the Carn Brea lodes. Though at the distance of 19 miles, the lode is similar in character and composition. This spot is well worth a visit by any one conversant with mining. The works executed here will convince the most sceptical that large sets are advantageous. This is 1/2 mile long by 1/2 mile wide, has been working for 24 years, and is not yet half worked. The agents speak in most positive terms of the sterling value of the mines, and are vigorously exploring the ground. The mines have yielded a profit of 200,000l. to

the fortunate adventurers, on an outlay of 15,000l., and will, in all probability, continue to give dividends as long and as great as heretofore. This mine is an incontestable proof of the stability of Cornish mines.

**TRESAVAN MINE.**—We are glad to hear that Capt. Martin is likely to soon get this mine into efficient working order, the applications for shares being numerous. At the sale of materials, held on the mine on Wednesday last, some of the engines were disposed of, and the materials did not go off with the readiness that has been frequently observed lately.

**BRYNTAIL.**—There is every probability that this mine will shortly resume its dividends and become a permanent paying mine. The discoveries recently made are about the most remarkable for many years in the Principality.

**THE "CORNUBIA."**—As you have noticed in your Journal the heavy weather sustained by the *Cornubia* on her passage from Bristol to Hayle on the night of the 6th inst., may I trespass on your space to mention that, while the passengers were testifying to her gallant bearing on that night, very many, and among them men of great nautical experience, regretted that she should be sent through such unnecessary work. There was small possibility of making Hayle that tide, and yet full speed was maintained, while on after sea was hurried upon the noble ship, which struggled on as few ships before her could have done; spreading alarm and consternation where all might have been peace and quietude, while to swell our fears, the waves rushed through the hatch lights, and down the companion into the second cabin, setting all afloat. Lord were the opinion there expressed that a boat, whose safety was of such importance to the trade of Western Cornwall, ought not to have been driven so recklessly through such heavy seas and in such a gale, that it could do no good to the ship, and might do great injury to her crew.

**UNITED MINES (Tavistock).**—A very considerable improvement has taken place during the past fortnight, especially in the 48 east, where the lode is now very good for tin. There are several other points which have qualified improvements; and I verily believe if the large quantities of tin ground now standing in the backs of the 36 and 48 fm. levels were taken away on tribute the returns would be increased.

**DRAKE WALLS MINE.**—"Spaling."—An important mining case has just been decided at the Tavistock County Court—the plaintiff (John Walters) being a working miner in, and the defendant (Capt. Gregory) the agent of the above mine. The plaintiff declared that the amount claimed (19s. 3d.) was due to him for wages. He was one of a party of men who worked in the mine; there was 17 kept back as a "spale," in December last for stopping half an hour during the working hours. He was subsequently paid half of it again. The agent had also stopped another 7s. 6d. in December, but he scarcely knew what it was for; and in September last 2s. 6d. was stopped for sending a doctor's certificate when he was absent. Mr. Chilcott (for the defendant) said the amount was small, and the adventurers would at once have paid it, were it not that the question involved was of some importance. Capt. Gregory, being the agent of the company, was compelled to see that the work of the mine was properly executed; and, in accordance with the contract entered into, 7s. was deducted for neglect of work. The contract was taken for two months, but the price of ore fell to so great an extent that the committee of management determined to reduce the wages 12 1/2 per cent. On December 1, notices were posted on the mine announcing that the surface bargains were to be suspended, and that the men would have permission to leave or to give up their contracts. Notice was also given that the surface labourers would have 12 1/2 per cent. reduction for December. This was not a fine, but a reduction in the wages, and the men having consented to the reduction, the contract was continued. This disposed of 17s., and the remaining 2s. 6d. claimed was stopped in July last, when the plaintiff had absented himself from work without leave, and by the rules of the mine, and to which the plaintiff had subscribed his name, the agents had the power to fine him for the offence. Most of the Cornish mines make a similar reduction in wages at the time in question. The Judge enquired whether, if a man takes a contract for two months, he can be dismissed before that time expires? Capt. Gregory said it was the custom to do so. A verdict was given for the defendant.

**THE PORKKILLS UNITED MINES.**—These mines, with the whole of the machinery, comprising a 60-inch cylinder pumping engine, a 30m winding engine and gear, a steam stamping engine, 80 heads of stamps, and every kind of machinery and materials to correspond, and requisite to work mines of such magnitude as the Porkkills, were, on Tuesday, offered for sale by auction, at the Mart, by Messrs. Osden, Winterfall, and Ellis. It appeared that the necessity for the sale had arisen from the unwillingness of the shareholders to provide the necessary funds to repair an accident, that of the falling in of the shaft. There was but little competition, and the whole of the mines, machinery, and materials, were knocked down at 1700l.

**MOLLAND MINE.**—The difficulties which have attended the operations here are more than likely to be overcome in course of sinking and reaching settled ground, where the numerous slides, which have hitherto proved so annoying are evidently wearing out. The 32 east is much improved, and worth nearly 2 tons per fm. of good ore.

**TWO OF HENWOOD'S DRESSING MACHINES** are now in course of construction at a Cornish engine; these will be erected on mines in different localities. The model was examined on Saturday last by Capt. Charles Thomas, of Boleston, Capt. W. Thomas, and other mining celebrities, who all expressed a belief that the principle will answer well. The engineer to whom the manufacture has been confided feels quite sure of success, and of its being largely introduced. All the mining authorities, save one, have given a favourable opinion; but this one, we are given to understand, is an interested party, being himself an inventor.

**AN EVENING SCHOOL FOR MINERS,** at a very cheap price, has been commenced at the village of Pool, midway between Camborne and Redruth. It was to be opened on Monday last, that being the Monday of "Bilgon Feast," when all is really feasting amongst these people. We think the time was ill-judged for making a commencement, as the first blow is half the battle. The prestige of its opening with *what* would possibly and probably have done wonders in its favour. As it is, we sincerely hope the project may be attended with success. The locality selected could not have been better, and the master is perfectly competent.

**OLD TOLGUS UNITED.**—(By Telegraph, Friday, 8 A.M.).—The 32 west, on south lode, yields 1 ton of copper ore per fm.; the 32 east, 2 tons of copper ore; the 32 west, on engine lode, 2 tons of copper ore and 3 tons of blende; the 32 east, on engine lode, 1 ton of copper ore per fm.; the 32 east, on engine lode, 1 ton of copper ore and 2 tons of blende; the 10 west, on new south lode, 1/2 ton of copper ore per fm. About 30 tons of copper ore and 60 tons of blende are now dressed, and a like quantity is in progress of dressing. We are now in full course of working, but, owing to the pitwork being remodelled and permanently fixed from the adit to the 44, the mining operations were all but suspended for fully six weeks, until 10 days since.

**GREAT WHEAL VOR UNITED MINES.**—Several enquiries having been addressed to us requesting information as to the progress of operations at the mines, and the actual position of the company, we have pleasure in publishing the following particulars, which we have obtained from a well informed correspondent:—

You may depend upon the directors are desirous to do their duty thoroughly, conscientiously, and to the best of their judgment, for the advantage of the mines and the proprietors. Wheal Metal has lately fallen off, which has considerably reduced the returns; it is, however, reported to be again improving. The slopes in the bottom of the old mine at present available are poor, but I understand instructions have been forwarded to lay open, scrape clear, and blast the bottom slopes, in order that they may have a thorough inspection, so as to be able as far as possible to ascertain their present and prospective position. It is expected, therefore, in the course of next month to know with more reliable accuracy the condition and quality of the bottom levels, and the run of tin ground in the old mine, which, if the results are as promising as anticipated, will, by judiciously exertion the mine has been drained to the bottom, the two skips have been carried to the bottom, the plunger in the 236 is at work, the balance in the 180 is falling in, so that the rods are relieved, and every facility for drawing stuff completed. The former workers drew with one kibble, containing, I believe, 1 cwt.; their two skips contain each 1 ton. It took them 15 minutes to draw 1 cwt.; they can now draw 1 ton in three minutes. Tin was formerly 60l. per ton, now 65l. to 70l. Therefore, with present appliances and price of tin, they can raise poorer stuff to more advantage. Every hope is cherished that they will succeed in raising, of course, greatly diminished quantities of tin, but they will work poorer ground better than can be available. This, and the temporary filling off at Wheal Metal, has made their present condition less cheering. Capt. Gilf's report, in last week's Journal, with the particulars in this note, I think, supplies all the information which can be required.

**PRESENTATION.**—On Monday last, at the Wombridge Colliery, near Wellington, Salop, Mr. John Hocking, jun., of the firm of Messrs. Hocking and Loan, engineers, Redruth, Cornwall, was presented by John Bennett, Esq., with a handsome silver cup and salver, manufactured by Messrs. Oliviant and Botsford, of Manchester, in recognition of the satisfactory manner in which he had completed his contract for the erection of a large pumping-engine on the above estate.

**NORTH WALES MINING DISTRICT.**—The coal trade is decidedly improving in the Ruabon district, and considerable preparations are being made at the greater part of the collieries for the large demand which is expected to spring up for winter supplies. The inland trade in the district of Wrexham is very brisk at present, but the export business continues somewhat slack; still a considerable quantity of coal is sent off. In the iron trade there is not much improvement to be reported either in the export or in the highly probable there will be extensive orders for the next month, as the Staffordshire trade is improving, 3l. 15s. per ton being now given for hot-blast pigs. The Ponkey Iron-works are progressing most favourably, and it is expected that very shortly a large and lucrative business will be established there.

**COAL IN DOWNSHIRE.**—According to the local papers, a very valuable bed of coal has been discovered at Talyllyn, near Saintfield, Downshire, on the estate of Messrs. R. and S. Walker. Some specimens have been procured near the surface, which are said to be equal to any Scotch coal of a similar description. It is described as closely resembling the anthracite found in Pennsylvania and in Australia. It is interspersed with Silurian coal, which shows well-defined fossils of the graptolite species (*sea pens*), and other shells; and also plumbago and iron pyrites. The breadth of the vein already uncovered is upwards of 25 feet, and it is supposed to be 20 feet in thickness, but that fact must be problematical until (as we presume it will be) the vein has been properly explored and worked.

**IMPORTANCE OF SAFETY-LAMPS.**—A prominent instance of the necessity for employing safety-lamps exclusively in fiery mines occurred at the Lond Hill Colliery a few weeks since. A fall of roof occasioned an issue of gas, but owing to the lights being entirely excluded from the pit no loss of life resulted. Mr. John Brown, of Barnsley, is the viewer, and the caution he has exercised in using safety-lamps cannot be too highly commended. The lamps used are Stephenson's, which possess in advantage over Davy's, inasmuch as the former are completely extinguished by coming in contact with a large quantity of explosive gas.

**EXPLOSION AT BEDFORD COLLIERY.**—At an inquest upon the body of Geo. Evans, aged 60, who lost his life by an explosion at this colliery, a verdict of "Accidental Death" was returned. Whilst returning with a naked light he held an oil working and an explosion ensued, from which he died two days after the accident. Mr. Dickinson, the Government Inspector, remarked that the accident occurred from an error in judgment on the part of the fireman, underlooker, and deceased, in not using safety-lamps when they knew they were near the oil workings.

**BOILER EXPLOSION—FUSIBLE PLUGS.**—Through the neglect of the engine man, who was killed by the explosion, to supply water to the boiler, an explosion occurred at Messrs. Hibbert and Son's mill, Hyde, by which some considerable damage was done. It transpired that some time since John Barker, the millwright, substituted an iron plug for the fusible plug which was first fixed in the boiler, intending to alter it when the engine was next cleaned. Had this intention been carried out it is probable that the accident might have been prevented.



**GENERAL ASSOCIATION FOR THE AUSTRALIAN COLONIES.**—A meeting of the Australian colonies, was held at the St. Paul's Hotel, on Monday, for the purpose of supplying a deficiency long felt—namely, "that of a place of meeting for gentlemen from the Australian colonies." The chair was taken by Mr. John Farmer, who had convened the meeting. That gentleman stated that after having issued the advertisement he had been informed that "the association was already in existence." Under the above title, which embraced within its objects all those sought to be attained at the present meeting. It, therefore, became advisable to consider whether it would not be better to join the association already in existence than to endeavour to establish another. Mr. Housefield, the secretary of the association, was in attendance (not officially, but merely in his private capacity to afford information), and stated that the association was formed about a year ago, that it had already attained a standing, having been recognised by a department of the Government; had entered into, and he might almost say continued, a negotiation for the rooms over the Jerusalem Coffee-house; and it was now intended to form a library of books, newspapers, maps, &c., and a museum of colonial produce, in a word, to make the association the best authority in London upon all colonial matters; to collect and make available all information interesting or useful to the Australian colonists; and to afford great conveniences than have hitherto been accessible to colonists and persons interested in the colonies, by commerce or otherwise. It was suggested by a gentleman present, who was interested in the Canadian colonies as well as those of Australia, that all British colonists should be admitted to the benefits of the association, from whatever quarter of the globe they might come. This suggestion appeared to meet the approbation of the meeting, but it was considered to be a matter of detail, to be discussed hereafter. It was finally resolved, upon the motion of Mr. Moorhouse, after some general conversation, "That as a society was already in existence was intended to answer the purposes of the society intended to be formed by that meeting, the present meeting be requested to become members of it." The meeting was adjourned to Nov. 18, to enable the gentlemen present to ascertain if the regulations of the association were such as to meet their views. A vote of thanks to the Chairman was passed, and the meeting, graciously and fully acknowledged. [We apprehend that there can be but little doubt of the success of the association, as that in question, and still less of its success, if conducted with the spirit which has been observed at the present meeting. We need hardly add, that as one of the objects of the association is necessarily to be collected and disseminate information upon mining enterprise in the colonies, so useful and interesting to our readers at home and in every quarter of the globe where the English language is spoken, where British miners make the earth disgorge its wealth, and the *Mining Journal* is read, we most heartily wish that every mine may attend them.]



with lead throughout; produce 7 cwt. of lead per fathom. In the 12 north the lode is very much the same as last reported, and still disordered by the hard channel of ground. I am happy to say that during the past week the water in the bottom of our shaft is somewhat abated, so that we are not obliged to work our engine as fast as formerly, but still going six to seven strokes per minute.

**CARVANNALL.**—Wm. Roberts, Oct. 19: There is no alteration to notice since I reported for the meeting on Oct. 12.

**CATHERINE AND JANE CONSOLS.**—R. Barry, Oct. 20: The lode in the deep adit, driving north-west, is near 2 ft. wide, producing occasionally good stones of lead; the ground in this end has become much easier for driving, and more congenial for mineral. The lode in the stopes north-west of No. 4 winze is without alteration since last report—still worth 10 cwt. of ore per fathom. The stopes north-west of the rise will produce from 10 to 12 cwt. per fathom. The stopes north-east of No. 3 winze are holed to the former workings in the bottom of the middle adit; consequently these stopes are quite exhausted, and the men are removed to cut a pit in the middle adit level, about 6 fms. behind the present end, preparatory to sinking a winze in the bottom of this level, where the lode is 15 in. wide, and worth 12 cwt. of ore per fm. During the past week the rise in the cross-branch has been communicated with the stopes in bottom of the level, 5 fms. above the deep adit; at the hoisting point the branch is worth from 10 to 12 cwt. of ore per fathom. In course of a day or two we shall be in a position to commence stopping east and west of the rise to a good advantage. The lode in the middle adit end has become rather small, and not so productive as stated in my last, worth at present about 5 cwt. of ore per fathom; this end is still driving through a beautiful channel of ground, and I have no doubt the lode will soon become more productive. We have from 6 to 7 tons of ore on the floors, and are daily adding more to the quantity.

**CHOLLACOTT CONSOLS.**—Jas. Carpenter, Oct. 21: We are pushing on both cross-cuts in the 25 with all possible dispatch; the ground is favourable, and there are six men driving in each end, at 37. per fathom. We are putting up a capstan, to command our pitwork, &c., better.

**COLLACOMBE.**—S. Mitchell, Oct. 20: During the last week the lode in the 40, east and west of the western shaft, has improved, having become larger, and composed of quartz, capel, blende, prlan, and rich copper ore, producing saving work. Other points continue as last reported on. The following pitches were set on Friday:—Burrow's pitch in the 73, at 7s. 11d.; Henwood's pitch in the 62, at 4s. 6d. in 11; Bucknell's pitch in the 62, at 4s. 6d. in 11; Lang's pitch in the 40, at 8s. in 11; Stacey's pitch in the 40, at 10s. in 11.

**CROWDALE.**—James Richards, Oct. 21: There is no alteration worthy of notice since my last report.

**CWM ERFIN.** Oct. 19: The lode in the 69, going east from the drawing-shaft, is 4 ft. wide, composed of clay-slate, quartz, and copper and lead ore, yielding of the latter dressing work. The lode in the 57, going east from the drawing-shaft, is 3 ft. wide, producing occasional stones of lead ore, but not to value; the lode in the stopes over the back of this level, about 30 fms. east of the drawing-shaft, yields on an average 12 cwt. of lead ore per fathom. The lode in the 45, going east of cross-cut, is at present small and poor, and the air very dead, consequently the driving of this level is suspended until a communication is made with the 32. Those men have commenced rising in back of the level, about 7 fms. behind the end; the lode in this place is 2½ ft. wide, and worth 8 cwt. of lead ore per fathom; the lode in the stopes over the back of this level has slightly improved since our last report; the lode in the stopes over the back of lead ore per fathom. The lode in the 32, going east of cross-cut, still presents a very promising appearance, being 3 ft. wide, and worth 1 ton of lead ore per fathom. In consequence of the deadness of the air, we are obliged to suspend the driving of this level also, until a communication is effected with the rise in back of the 45, before mentioned. Those men have started a winze close to the present end, and I calculate upon communicating this ground in seven weeks from this date; the lode in the stopes over the back of this level, 15 fms. east of the cross-cut, is on an average 3 ft. wide, yielding 1½ ton of lead ore per fathom. The 20, east of cross-cut, has shown symptoms of improvement during the past week; the lode is now full 3 ft. wide, containing blende, quartz, copper, and lead ore, yielding of the latter ¼ ton per fathom; the lode in the stopes over the back of this level, about 7 fms. east of the cross-cut, is from 2 to 3 feet wide, and worth 8 cwt. of lead ore per fathom. We have succeeded in cutting the north part of the lode in the 10 cross-cut south, which contains a small branch of lead ore, about 1 in. wide; but, not being sufficiently through the lode, I am not in a position to report on its full value. On our cutting through the lode we shall at once commence a level east on the same. We have three pitches working on tribute, at 97. 10s. per ton, the men to pay all costs, who, I think, are earning fair wages.

**CWM SEBON.**—J. Bourdy, Oct. 18: In consequence of the heavy rain which has fallen in this locality during the week, so much that it filled and overflowed our leads with water, a large portion of which ran down into the mine, and did it within 6 in. of the roof of the 60, consequently nothing has been done in the several bargains in the 60 or the 70 during the week. We are working the pumping-wheel as fast as we ought to work, and am happy to say the water is again falling, when every effort will be used to get the mine again in fork as soon as possible. The castings for the drawing-machine will be ready at the foundry this evening, and I hope to get them delivered on the mine by Monday morning early. No time shall be lost in getting the machine ready to work again with all possible speed. The lode in the 30 cross-cut, driving east, is 1 foot wide, composed of sugar-spar, and lead ore, although not enough of the latter at present to value, yet the lode has a promising appearance. The ground in the 20 cross-cut, driving south, is getting harder for exploring; I think we are getting near a lode, as the ground presents every appearance of it. In the 20 east the lode at present is small, and disordered by a soft channel of ground. The tribute department is much the same as for some time past.

**DALE.**—R. Nines, Oct. 21: Since my last we have driven 3 ft. more towards the Pipe vein, but have not yet cut it, and the water being so quick from the late heavy rains it is at this time rather impeding our progress. The 26, going north towards the Lum, is without alteration, and so are the stopes in the back of the 20, on Johnson's lode. The lode in the east going east in the back of the rise still continues good.

**DEVON AND CORNWALL UNITED.**—T. Nell, Oct. 19: The stopes in the mine produce respectively 8 and 6 tons of ore per fm. In the midway east we are driving by the side of the lode, at William and Mary, we are also driving by the side of the lode, and from present appearance, when taken down it will be found equally productive as last reported. The stopes in the back of this level produce 2 tons of ore per fm.

**DEVON WHEAL BULLER.**—F. Bennett, Jun., Oct. 19: There has been during the past week an improvement in the lode in the 44, west of the engine-shaft, the lode is 2½ ft. wide, composed of quartz, peach, mudiic, and copper ore, yielding about ¼ ton of ore per fm., and looking very promising. The lode in the rise in the back of the 32, east of the engine-shaft, is also improving, yielding good stones of copper ore. The lode in the 20, east of the engine-shaft, is about 15 in. wide, composed of quartz, peach, mudiic, and stones of ore—looking promising. There is no alteration in the other parts of this mine to report since last week.

**DRAKE WALLS.**—T. Gregory, J. Andrews, Oct. 19: The stopes below the 70, west of Betteley's shaft, to drain the western part of the mine, is progressing satisfactorily, and the branches are producing good work. The 80 is 20 fms. behind the tin ground, which should be reached and driven west with all possible speed; this would enable us to increase the returns in a short time after the level is driven, but which requires a little time and patience. The branches in the 92, east of Matthews's, are producing good work; we have 20 fms. further to drive to intersect the large cross-course, about which we have always had a good run of tin ground, which has gone down below the 80 for a good length; and, from the fact of the branches having now become more valuable, we may expect a continuance of the same. The branches in the 80 are more promising, and producing better work. The 70 and 60 present no change to notice. The stopes throughout the mine are producing about the usual quantity of tin. We are increasing our stock of broken tin in the 70 and 40, having increased the number of stopes at those points. The north lode is from 3½ to 4 ft. wide, producing saving work for tin, and worth 97. per fm.; this is a very important improvement, being in virgin ground from the 70 to surface, which will give 100 fms. of backs, and is available by cross-cuts from the old mine 30 fms. below the 70; and as the lode is only seen at this point, it may possibly be the most productive part of the mine. The facilities for developing this lode are all that can be desired, being laid open high and dry; and having the old gunnies to deposit all at once, a considerable saving will be effected thereby. We purpose at once to improve the ventilation by a machine, so as to increase the number of men, and also to lay all speed to the great cross-course, which, in our opinion, will lay open a much more valuable lode. The general appearance of the mine are much more satisfactory, and a little time is required to bring the western part of the mine into a good position, which will then place the concern in a profitable and productive state.

**EAST ALFRED CONSOLS.**—Henry Skewes, Oct. 20: Painter's engine-shaft is sunk 7 fms. under the 30. The cross-cut is driven north from ditto, in the 30, 12 fms. We have fixed a plunger at ditto, which is working well. The eastern end, in the 15, is without alteration; western end in ditto is of a kindly appearance, with a quantity of water issuing from it. The south lode in the western end is 1 ft. wide, producing copper ore and blende; we have suspended this end for the present, and put the men to sink a winze from adit on ditto. The lode in the winze is 1 ft. wide, producing saving work for copper and blende. We have set our stopes on tribute: three in back of the 15, at 10s. in 11; one in back of the 12, at 12s. 6d. in 11; and one at 13s. 4d. in 11.

**EAST CARN BREA.**—T. Glanville, Oct. 16: Tutwiler Setting: The 14 to drive east of the engine-shaft, at 11s. 6d. per fathom; lode yielding about 1 ton of ore per fathom. The 14 to drive west of the engine-shaft, by four men, at 57. per fathom; lode yielding 1 ton of ore per fathom. The winze to sink under the adit level, by two men, at 57. per fathom.

—T. Glanville, Oct. 18: The lode in the 14, east of the shaft, is very much improved; it is now 2 ft. wide, yielding nearly 4 tons of copper ore per fm.

**EAST DAREN.**—Oct. 19: In the 92 cross-cut we have intersected the lode, composed of clay-slate, spar, and lead ore; we have cut in about 4 ft., and it looks promising to be a large and productive lode. In the 80, west of Taylor's shaft, on the south, the lode is 3 ft. wide, composed of clay-slate, spar, and lead ore, yielding of the latter about 1 ton per fathom. In the 30, west of winze, 10 fms. east of Taylor's shaft, the lode is 4 feet wide, yielding 2 tons of lead ore per fathom; in the same level, east of winze, the lode is from 4 to 5 ft. wide, composed of clay-slate, spar, and lead ore, yielding of the latter 1½ ton per fathom, with a promising appearance; we have set a winze to sink below this level; the lode is 4 ft. wide, composed of clay-slate and lead ore, yielding of the latter 1½ ton per fathom. The 68 is suspended for the present, as it is now a great distance from the shaft, and air is very dead. In the 63 cross-cut, north of Reed's shaft, the ground is hard, but pushing on with all speed. In the 56, west of Reed's shaft, the lode is 3 ft. wide, composed of clay-slate, spar, and blende, but poor at present; in a winze sinking below this level, 14 fms. west of Reed's shaft, the lode is 3 ft. wide, composed of clay-slate, spar, and lead ore, yielding of the latter 12 cwt. per fathom. In the 44, west of same shaft, the lode is from 2 to 3 ft. wide, composed of clay-slate, carbonate of lime, intermixed with lead ore, but not sufficient to set a value on, but has a very promising appearance. In the 44, driving east of cross-cut, south of Loveden engine-shaft, the lode is large, and disordered by broken-up ground. In the drift driving under a new pool the ground is favourable; and in the same driving west the ground is favourable. The stopes throughout the mine still continue to yield fair quantities of ore. Our machinery, dressing, and all other surface operations are progressing satisfactorily.

**EAST GUNNIS LAKE AND SOUTH BEDFORD CONSOLS.**—J. Phillips, Oct. 19: The lode in the 75 west is from 3 to 4 ft. wide, and worth 3 tons of ore per fm. There is no alteration to notice in any other part of the mine.

**EAST PROVIDENCE.**—W. Hollow, T. Uren, Oct. 19: We are persevering with all speed in sinking the shaft. Harvey's shaft is sunk 9 ft. below the adit level; the lode here is from 2 to 3 feet wide, and of a very promising character, composed of capel, spar, mudiic, and tin; we believe this lode will make a productive one in depth. Podie's shaft is sunk 8 ft. below the lode, the ground is favourable for sinking, and the lode much the same as when last reported. The adit level is driving west from Poole's shaft, by two men, at 30s. per fathom; no change here since last report. Phillips's shaft is sinking below surface, by two men, at 80s. per fathom; this shaft is 5 fathoms deep, the lode is 15 in. wide, of a promising appearance, and producing a little tin.

**EAST ROSEWARNE.**—J. James, Oct. 16: In the 43 cross-cut, both north and south of the engine-shaft, the ground is much as last reported. In the 33, west of Matthews's shaft, the lode is 1 foot wide, unproductive; we have suspended this end for the present.

In the 22, west of Hanley's, on Brook south lode, the lode in the past week has been small and poor, but there is an indication of improvement. In the 22 east, on north lode, the lode is 1½ foot wide, yielding about 1 ton of good copper ore per fathom—a very kindly lode. In the rise in the back of this end, against Hallett's shaft, the lode is 9 in. wide, with good stones of ore. We expect to hole Hallett's shaft to the 22 very shortly, as we are within the sound of each other's voice through the ground. Our tribute department is looking rather better than for some months past.

**EAST TAMAE CONSOLS.**—G. E. Tremayne, J. Wolferstan, Oct. 19: Since the last meeting the engine-shaft has been sunk 7 fms. below the 40; for the whole of this depth the lode is about 3 ft. wide, composed of fluor, horn-spar, and lead—of the latter, it has produced from 16 to 20 cwt. per fm. The lode at the bottom of the shaft is still improving, and is now worth 1 ton of ore per fm. The ground about the lode has been very favourable for sinking, being a light blue killas; the lode, when accompanied with this kind of killas, has generally proved very productive, and from the present favourable appearance of it, and the character of the killas about it, we may fairly expect good results in the next level, and for which we purpose sinking 12 fms. below the 40. A tip-lift has been cut in the 40, bearer-holes cut and bearers put in, and cistern fixed. A drawing-lift has also been reared up from the 40 to the 20, and made complete. We have also sent down 20 fms. of main rods, and everything made complete for sinking to the 30, which we hope to reach in about two months from this time. The 40 has been extended south about 25 fms. on the course of the lode, for 20 fms. of which the lode has averaged about 3 ft. wide, composed of fluor, horn-spar, and lead—of the latter, about 10 cwt. per fm.; in driving the last 5 fms. the lode has considerably improved in character and value, varying from 3 tons to 25 cwt. of lead per fm.—for the greatest distance of the latter value. In the present end the lode is 3½ ft. wide, composed of a decomposed horn-spar and lead, and will now yield 20 cwt. of ore per fm. The lode at this point is very similar in character and value as in the 56, north of Whitson engine-shaft, which gives us every reason to believe we have a very valuable piece of ground between our engine-shaft and the adit, and which is considerably increasing in length as we go down. We have also communicated to the winze in the bottom of the 30, which has given us good ventilation. The 40 north has been driven about 15 fms. on the course of the lode—for the whole of this distance it is about 3 ft. wide, composed of fluor and horn-spar, and yielding about 7 cwt. of lead per fm.; in the present end the lode is worth about 5 cwt. of ore per fm. The lode in the rise in back of this level is 3 ft. wide, and worth 8 cwt. of lead per fm. The 20 north has been driven about 8 fms. on the course of the lode—for the whole distance the lode has been poor. This is the only end we have present driving north. We hope soon to have a favourable change in this part of the mine, which is a very important point to us. Our next sampling we hope will be from 35 to 40 tons of good quality ore. Our machinery is all in perfect order, and we do not anticipate any extra expenditure, therefore the cost for the ensuing quarter will be about the same as last.

**EAST WHEAL FALMOUTH.**—W. Hancock, Oct. 19: Since my last report I beg to say there is no change to notice in the 30 ends on Chennell's and counter lodes. The stopes are just as on my last. The 20 end west, on Chennell's lode, has improved to-day; it will produce 9 cwt. of lead and 3 cwt. of jack per fathom. The ground at the engine-shaft is just as last reported; we are pushing it down as fast as possible. No change to notice in any other part of the mine.

**EAST WHEAL ROBERT.**—E. Colloff, Oct. 16: We have cut a lode in the adit and driven through it, but it is not the great counter lode, as it is running in a different course, and is underlying in an opposite direction; it is about 3 ft. wide, 2½ ft. of which is composed of fluor, prlan, and mudiic, and a branch about 6 inches wide, composed of goosan and spar; it is a beautiful fair thing, and must come in contact with the counter lode at no great distance.

**EAST WHEAL RUSSELL.**—John Goldworthy, Oct. 14: The ground in the 88 is of much the same character for driving as last reported; the lode is 4 ft. wide, composed of prlan, mudiic, spar, capel, and producing a little grey and black ore, but not to value, with a large stream of water flowing from the end; the lode is a very promising one; the ground driven this week is about 6 ft. There is no change in the ground at Homersham's shaft since last reported on; it is now below the 66 fm. level 20 fms. 3 ft. 6 in. The ground in the 66 end is a little improved for driving; the lode is opening larger, and composed of capel, mudiic, spar, fluor, and black ore, saving work, but not to value; the lode in the 66 end is a very promising one, and the character of the lode there is no doubt of a good one; it is now worth about 2 tons per fm.; I have not had the assay, so I cannot say its value. The end is now 11 fms. east of Homersham's shaft, and 26 fms. west of the winze sunk below the 66, so this looks well for the ore to be lengthening. Homersham's shaft is sunk 21 fms. 2 ft. 6 in. below the 66. The lode in the 66 end is of a promising character, and producing saving work, but not to value—ground driven this week 6 ft. The 45, east of the Tunnel, has been cleared this week 2 fms. 2 ft. The tribute pitches are without any change.

**EAST WHEAL TOLGUS.**—Oct. 16: Redruth Consols Lode: The lode in the 46, east of engine-shaft, is 10 in. wide, unproductive. The lode in the rise in the back of the 24 is producing 1 ton of copper ore per fm., saving work for tin. The lode in the 22, east of John's shaft, is 3½ ft. wide, producing stones of copper ore, and saving work for tin—a very promising lode. At John's shaft, sinking below the 22, the lode is 4 ft. wide, yielding 5 tons of copper ore per fathom; in the stopes in the bottom of the 22, the lode is 4 ft. wide, yielding 3 tons of copper ore per fathom; the lode in the 12, east of John's shaft, is 2½ ft. wide, saving work for tin. The stopes in the bottom of the 12, west of John's shaft, is yielding 2 tons of copper ore per fm. The men working the stopes in the back of the 12, east of John's shaft, have not taken down the lode since last reported.—North Lode: In the adit end, east of engine-shaft, the lode is small and poor. We have not met with any lode in the 12 cross-cut south since last reported.

**EXMOUTH.**—W. Skewis, J. Nicholls, J. Rodda, Oct. 20: The 60 north is progressing favourably, but the lode has not been taken down during the past week; the lode in the rise above the back of this level will yield 6 cwt. of lead ore per fathom. The cross-cut west from the 60 south has not yet reached the lode; the rise in back of this level is communicated with the 40, which has afforded good ventilation, and laid open good tribute ground. The pitches in the back of the 60 are now looking well. The lode in the 40 north is yielding 8 to 10 cwt. of ore per fathom; in the winze sinking below this level is yielding ¼ ton of ore per fathom. The lode in the 40 south is improved, and will yield 6 cwt. of ore per fathom. The lode in the 20 south is looking very promising, and will turn out ¼ ton of ore per fm. In the 10 south the lode is looking very kindly, and producing 6 cwt. of ore per fm. The adit south is yielding 4 cwt. of ore per fathom. The south part of the mine, upon the whole, is looking better than it has for some weeks past.

**GAWTON COPPER.**—J. Gill, Oct. 20: The ground in the east is still favourable for exploring. The lode is about 2 ft. wide, with much the same appearance as last stated, but letting out a little more water, which I consider a good indication. The rise is up 13 fms.; we expect to effect a communication about the end of this month. The lode in the 40 north is yielding 8 to 10 cwt. of ore per fathom; in the winze sinking below this level is yielding ¼ ton of ore per fathom. The lode in the 40 south is improved, and will yield 6 cwt. of ore per fathom. The lode in the 20 south is looking very promising, and will turn out ¼ ton of ore per fm. In the 10 south the lode is looking very kindly, and producing 6 cwt. of ore per fm. The adit south is yielding 4 cwt. of ore per fathom. The south part of the mine, upon the whole, is looking better than it has for some weeks past.

**GELBERHEIRON.**—R. Northey, Oct. 18: The lode in the 40 is without alteration since last reported. The lode in the 30, which is sinking from the 40, is still in the same position, and is a little improved, worth 8 cwt. of lead ore per fm. I can see no change in any other part of the mine worthy of remark since I last wrote you. Our crusher is doing a great deal more work since the alteration, and is crushing quite as much stuff again as before.

**GERNICK.**—J. Barratt, Oct. 19: The end being driven east from flat-rod shaft, on Gernick lode, has passed through the counter; the lode at this point is small and unproductive. This end is now in a very dark elvan, which is impregnated with yellow copper ore and mudiic throughout. Seeing that the elvan is changed from a light to a very dark colour, and being so highly mineralised, I conclude we are very near the junction of elvan and killas, and that we may soon expect an improvement in the lode. 40 fms. east of the end, in the 30, the lode is 2 ft. wide, including the horse. It should have been 2 ft. wide, including the horse.

**GREAT HEWAS UNITED.**—J. Webb, Oct. 20: We have no alteration to notice in the 90. In the 76, west of the shaft, we have a large promising lode, and good work to be done. The lode in the 60 west is divided into two branches, but producing good stones of tin. The lode in the 56 west is turning out good work; the mine generally in this direction has much improved. In the 56 east we are putting up a rise to communicate with the 36, for supplying and cutting out new stopes. The lode in the 36 is 1 ft. wide, saving work. We are driving through a piece of silty ground, which impoverished some of our best stopes about three months ago; we have now indications of the lode resuming its productiveness. The stopes in the back of the 20 are looking well, but the tribute department has rather fallen off the last month or two.

**GREAT ONSLOW CONSOLS.**—G. Rickard, Oct. 21: The ground by the side of the lode in the 87 west is somewhat harder. The lode in the 107 west is composed for the most part of quartz, with copper ore interspersed. In the 107 east the lode is composed principally of prlan, spotted with copper ore, and is an improvement on the lode in the 107 west, and there is a good probability of its further improvement. This idea is favoured by the fact of there being an increased quantity of water flowing from the lode.

**GREAT SOUTH TOLGUS.**—J. Daw, Oct. 19: The principal points of operation are as follows:—Driving the 90 east of Lyle's shaft; 90 west of Lyle's shaft; 80 west of Lyle's shaft; 80 east of Lyle's shaft; 70 west of Lyle's shaft; 70 cross-cut north of new shaft; 70 cross-cut south of new shaft; 70 east on new lode; 60 west of Lyle's shaft; 50 west of Lyle's shaft; 40 west of Lyle's shaft; 30 west of winze. Sinking Lyle's shaft below the 90: two stopes in the back of the 70; two stopes in the back of the 60. Lyle's shaft is sunk 6 ft. below the 90; the lode is 3 ft. wide, very promising, and producing some very good copper ore; sinking by nine men and three boys, at 207. per fm. The 90 is driven east of Lyle's shaft 6 fms.; the lode is 2½ ft. wide, producing 1 ton per fm. The 70 cross-cut is driven south of new shaft 68 fms.; no lode has been intersected; driving by two men and two boys, at 47. 10s. per fm. The 70 cross-cut is driven north of new shaft 45 fms.; driving by two men and two boys, at 31. 10s. per fm. The 70 is driven east of cross-cut on new lode 2 fms.; the lode is 6 in. wide, producing stones of ore, but not to value; driving by two men, at 21. 10s. per fm. The 60 is driven west of Lyle's shaft 42 fms.; the lode is small and unproductive; driving by two men and two boys, at 47. 10s. per fm. The 50 is driven west of Lyle's shaft 34 fms.; the lode is 2 ft. wide, producing some good ore, but nothing to value; driving two men and two boys, at 47. per fm. The 40 is driven west of Lyle's shaft 28 fms.; the lode is 2 ft. wide, opening tribute ground; driving by two men and two boys, at 21. 10s. per fm. The 30 is driven west of winze 40 fms.; lode unproductive; driving by two men, at 21. 10s. per fm. The stopes now working are:—In back of the 70, west of Lyle's shaft, by two men, at 17. 10s. per fm.; in back of the 70, east of Lyle's shaft, by four men, at 17. 10s. per fm.; in back of the 60, west of Lyle's shaft, by three men, at 17. 10s. per fm. In the back of the 60, east of Lyle's shaft, by four men, at 21. 10s. per fm. On comparing this report with that of Aug. 18 last an improvement will be observed in the 80, east of

Lyle's shaft; at some other points a trifling falling off; the ground, however, is rapidly opening, and the side lodes are yet unexplored.

**GREAT TREGUEN CONSOLS.**—J. Spargo, Oct. 21: The lode in the 70 end, west of Hobler's shaft, is again improved since my last report, having the last few days been some rich work for copper. The lode in the 60 end, west in the same shaft, is also looking much better, and is producing some good stones of copper ore. Both of these levels have the appearance of a speedy and greater improvement.

**GREAT WHEAL ALFRED.**—M. W. Michell, W. Arthur, Oct. 18: Copper-house shaft is sunk 6 fathoms below the 190; the lode is much improved, and increased in size, it is now from 5 to 6 feet wide, and worth for the whole length (13 feet) 707. per fm. We have a large piece of lode yet to take down, which will yield several tons of good ore. The lode in the 190 west is 2½ ft. wide, producing 1½ ton of copper ore per fm. The stopes in the back of this level, east of the above shaft, are worth 40s. per fathom. We have removed the men from the 190 end east to strip down a north part of the lode, which is standing a few fathoms behind the end, which from the appearance of the stopes is the main part. The lode in the 180 west is 3 feet wide, but unproductive for copper. The lode in the 170 west is very much increased in size, being now fully 4 feet wide, and producing a little copper ore. No other change to notice.

—M. W. Michell, W. Bugelhol, W. Arthur, Oct. 20: Since our last general meeting, Copper-house shaft has been sunk 4 fms., which varies in value from 80s. to 1007. per fathom for the whole length—12 ft. the lode in the present bottom is fully 4 ft. wide, and worth 707. per fathom; it is much larger than we expected, consequently it will take us rather longer to get down to the 200 than we stated in our report of September 25. The fixing and changing our pitwork also retarded our progress in sinking, but we have now ample power, and everything in good condition for sinking. The 190 has been driven east 11 fms., which has opened some tribute ground; the present end will yield 1 ton of copper ore per fathom; the stopes in the back of this level are worth 30s. per fm. The 190 has been driven west 9½ fms.; 2½ fms. of the former was worth from 30s. to 40s. per fathom, the remainder producing from 1 to 2 tons of copper ore per fathom; the present end is worth 67. per fathom. The 180 has been driven west 7 fms., through a lode varying from 2 to 4 ft. wide, principally composed of killas and spar, with some of yellow ore; the present end has a healthier appearance, and is producing more soft spar. The 170 has been driven west 6 fms., which yielded a little copper ore; the lode in the present end, which is 3 ft. wide, has a promising appearance. We have a pitch in bottom of the 160, a fathom or two west, working at 4s. 6d. in 11, therefore we may reasonably expect an improvement here shortly. The 160 has been driven west 10 fms., producing a little lead, but poor for copper. The 148 has been driven west 8½ fathoms, which has produced but little ore; this end is suspended. Our tribute department is much the same as for some time past.

**GREAT WHEAL BADDERN.**—J. Jenkin, Oct. 19: The ground and lode in the 61 end east is improving daily, and more favourable for driving. The stopes in the back and bottom of the 61, on the counter, are much the same as when last reported on, the winze sinking below the 61, on the main lode, being still in the killas as hard as sinking. All other operations throughout the mine are progressing favourably.

**GREAT WHEAL BUSY.**—J. Nancarrow, Oct. 16: The lode in Harvey's shaft has improved in the past week, and is worth for tin length of shaft 307. per fm. The 100 east is worth for tin and copper 181. per fm.; here we commenced rising under Chryseus's bottoms, that we may let down the water, which at present prevents our sinking further, as it does also in the eastern bottoms; this, also, for the time prevents us raising as much ore, and so good, as we otherwise should. Offord's shaft is communicated from the 90 to the 35, where the lode is very good; we shall immediately commence sinking below it. At this shaft we began yesterday about the skip-rod, and we hope to get ready for drawing in a fortnight from this time. No alteration in the 90 east or west, or in the 80 west, worthy of notice. In the 50 west the lode is still large and promising, but not quite so much ore, worth 67. per fm. Our tin pitches are, on the whole, improving. The cutting down of Reid's shaft is being very steadily proceeded with, as is also the building of the engine-houses, in all of which good progress is being made. The walls of the smith's shop are up, and a strong force sent by the railway company are engaged about the siding. The cylinder has been brought from Halmmaning this (Saturday).

**GREAT WHEAL MARTHA.**—W. Nottle, Oct. 21: We have not been able as yet to conclude any arrangement with the owners of the mill as to the purchase of rent of their water, so that I am not in a position to say whether we shall be able to do without the engine or not. There is no alteration in any part of the works of sufficient importance to report, and I do not expect there will be until either the engine or the water-wheel is set to work.

**GREAT WHEAL VOR UNITED.**—Thos. Gill, Oct. 19: Wheel Metal: The engine-shaft is sunk about 10 fms. below the 110 on Metal lode, which is 3½ ft. wide, and producing occasional stones of tin ore. The winze sinking below the 110, west of the engine-shaft, on Metal lode, is 2½ ft. wide, and producing good stones of tin ore, but not sufficient to value at present; I expect it will improve again shortly. The 110, driving west of the engine-shaft, on Metal lode, is 1½ ft. wide, and producing occasional stones of tin ore, but is poor. The 100, driving west of the engine-shaft, on Metal lode, is 1 ft. wide, very wet, and producing good stones of tin ore. The 90, west of the engine-shaft, on Metal lode, is small and poor for mineral. The 70, west of the engine-shaft, on Metal lode, is 1 ft. wide, and producing occasional stones of tin ore, but poor. The 50, west of the engine-shaft, on Metal lode, is 2½ ft. wide, and producing good stones of tin ore. The 50, west of John's shaft, on Schneider's lode, is 1½ foot wide, but poor for mineral. We have had no change for the last week in the 70 cross-cut driving north to intersect the north lode.—Wheal Vor: The 204, east of Boriase's engine-shaft, on the main lode, is 3 ft. wide, and producing good stones of tin ore. The 236, driving east of Boriase's engine-shaft, on the main lode, is very large and wide, yielding good stones of tin ore. The 248, east of Boriase's shaft, we are driving by the side of the lode; we intend to drive it about 6 fathoms further, when we expect to be under the bunch of tin that is gone down in the bottom of the 236, and then we intend to cross-cut the lode. The 284, driving west of Boriase's shaft, on the main lode, is 4 feet wide, and yielding good stones of tin ore. We have had no change for the last week in the 115 cross-cut, driving north of Wolf's shaft to intersect Trueman's lode. The 62, driving west of the Sand Bank shaft, on Trueman's lode, is 1½ ft. wide, and yielding good stones of tin ore. The stopes in the bottom of the 40, west of Sand Bank shaft, on Trueman's lode, is 2 ft. wide, and producing good work for the stamps. The stopes at Boriase's shaft, on the 260 to the 290 fms. level, are much more improved since we commenced to work them, and I hope shortly to be able to give you a fair estimate of their value weekly. All our machinery throughout the mine is working well. We are now clearing Boriase's engine-shaft below the 236. I expect by the end of this month to have the lift to the bottom, which is at present sunk to the 248 fm. level.

**GWYDYR PARK CONSOLS.**—H. Rawson, October 21: An improvement has taken place in the Cross-mawr level during the past week, owing to the two lodes between which we were driving having formed a junction, and some fine mixture of lead ore has been brought to surface. The sink above us will soon be empty of water, which will save a great deal of expense in communicating with the deep adit.

**HAWKMOOR.**—J. Richards, Oct. 18: The lode in the 60 east is greatly improved this last week; there is not enough done on the lode since to report on its value. Every particular respecting it shall be named in next week's report. At the 60 east, the lode is large and regular, producing some spots of tin ore, but not saving. At the 40 east, the lode is large and regular, driving by the side of the lode, the ground favourable for driving, and the south wall of the lode still looks well. The winze in the bottom of the 50 is producing some saving work, and is improving as we sink. At West Hawkmoor we have cut a branch in the south cross-cut, producing some rich quality ore, which looks well for the main lode when cut. The lode in the adit end west is about 1 ft. wide, containing spots of ore, but not enough to value.

**HINGTON DOWN CONSOLS.**—W. Richards, Oct. 20: Morris's shaft will be down the required depth to admit of driving west of same by the end of the present week. There is no change to notice in the 110, west of Doidge's winze. In the 100, west of shaft, the lode is about 3 ft. wide, of the same character as when last described, and we produce from 1 to 1½ ton of ore per fathom. In the 75 and 55 east, yielding good stones of tin ore, and saving work. Driving east from Hitchin's shaft, in the 75, the lode continues very promising, producing occasionally good stones of ore.

**HOLMBUSH.**—N. Scramble, Oct. 19: The lode in the 145, west of cross-cut, has not been taken down in the past week, but the appearance continues good; the lode in the stopes in back of this level are yielding over 1 ton of ore per fm. In the stopes in bottom of the 145, west of great cross-course, the lode is producing 1½ ton of ore per fm. The lode in the 160, east of the cross-cut driving south, is again improving, as the end is extended east of the slide. In the end driving west of the same cross-cut the lode



**the mine much as usual.** I hope to have something new to report next week that will tend to improve our prospects.

**SUNNY SIDE.—J. Bell,** Oct. 16: No change to report this week, progress being about the same. It will take another month to reach the shaft after present is finished. I deem it advisable then to shorten distance with the present bargains, for as we proceed further with the adit, The shaft down the adit will then be thoroughly ventilated, and greater facilities given for discharging the rubbish, and render the cost of driving less, and also expedite the driving; a length of 50 to 100 fms. may then be let to the cheapest contractor.

**TAMAR SILVER-LEAD.—T. Foot,** Oct. 18: The ground in the 226 south is much the same as when last reported on. We have cut the lode in the 215 south, which is 2½ ft. wide, and will yield 8 cwts. of lead per fathom, and likely to improve as the end advances south. The stope working in the back of this level is producing 9 cwt., or more per fathom. The lode in the back of this level is producing as follows:—No. 1, 14 cwt.; No. 2, 18 cwt.; No. 3, 10 cwt.; No. 4, 12 cwt.; No. 5, 9 cwt.; No. 6, 8 cwt.; No. 7, 6 cwt.; and No. 8, 5 cwt. of lead per fathom. The stopes in the back of the 190 fm. level south, three in number, are producing respectively 5, 6, and 7 cwt. of lead per fathom.

**TREWEATHA.—T. Richards,** Wm. Rowe, Oct. 20: The 90 ends continue to produce saving work. The 70 north is worth 4½. per fathom. The 50 cross-cut is still in the capital of the lode, which is hard, and difficult to get through. The stopes now working are turning out tolerably fair quantities of ore.

**VALE OF TOWY.—S. Harper,** T. Harvey, Oct. 19: The lode in Clay's engine-shaft, sinking below the 60, is 7 feet wide, containing barytes and soft spar, impregnated with lead, but not to value. The lode in the 60, north of said shaft, is 3 feet wide, with spots of lead, but not to value. In the 50, north of said shaft, is ¼ ft. wide, with spots of lead, but not to value. At Bonville's shaft, in consequence of the water being more free, we draw with barrels, we have suspended both ends in the 60 until we get our lifts to work; we have removed the men to stope in the bottom of the 60, north of thilshaft; the lode is 4 feet wide, and worth 25 cwt. of lead per fm. The lode in the 50, north of said shaft, is 4 feet wide, producing 10 cwt. of lead per fm., a very promising lode. The lode in Nos. 1, 2, and 3 stopes, in back of said north, of said shaft, is 3 feet wide, producing on an average 12 cwt. of lead per fm., and at least 4 cwt. of silver, 1 cwt. of lead, and 1 lb. of copper. The lode in the 40, north of said shaft, is very much disordered, being split up with branches of spar and killas, but we hope it will not continue long in this state. No. 2 winze, in the bottom of this level, is suspended, in consequence of having too much water. We have put the men to rise in back of the said level, where the lode is 3 feet wide, producing 15 cwt. of lead per fm. At Field's shaft, in consequence of putting in skip-road, and other necessary work about the shaft, we have done nothing in sinking; the skip-road being now completed, we shall commence drawing from the top of the lode. The lode in the 50, south of this shaft, is 4 feet wide, and produces 10 cwt. of lead per fm. The lode in the 40, south of this shaft, is 4 feet wide, and produces 10 to 12 cwt. of lead per fathom. We have not yet communicated the rise to Nant shaft, in back of the 20; looe poor. Nothing to notice in any other part of the mine.

**WEST BASSET.—W. Roberts,** Oct. 19: The only alteration to notice this week is in a winze sinking under the 75, about 20 fms. east of Percy's shaft; the lode is 2 ft. wide, producing 2 tons of ore, worth about 40l. per fm.

**WEST CRINNIS AND REGENT UNITED.—J. Webb,** Oct. 20: In the 70 west we are taking out the old timbers to enlarge the level for tram-wagon; it will require a few days longer before we can commence driving on the lode. We find the 60 extended west to a great distance; we have been clearing and securing this level, but have not reached the end of the old driving as yet. We find most of the level is composed of quartz, and the last 5 fathoms we have cleared is a large ore lode, and at least 10 ft. wide, with spots of ore. This cross-cut is too far west to take the run of ore gone below the 40; however, we shall find the cross-cut valuable to effect a communication with the 70 fm. level explorings on Bell's lode. The ground in the 70 cross-cut north is rather improved, now extended 11 fathoms from where we commenced at the engine-shaft. We have fixed the new plunger bottom in the 40, and preparing to bring back the water from the flat-roof shaft.

**WEST GRENVILLE.—Oct. 16:** The adit end west is looking better now, worth from 10l. to 12l. per fm. for copper, and likely to further improve shortly. We are pushing on Field's shaft with all possible speed.

**WEST SHARP TOPO.—W. Richards,** Oct. 18: We have set six of the shaftmen in the 125 fm. level to drive east in the elvan, on the north side of the lode, to form a temporary plat; as soon as that is finished we shall cross-cut the lode. In the meantime, the other shaftmen are working in bed-plank, ladder-road, &c. There is no change in the lode in No. 2 cross-cut, in the 110 west, since my last.—Setting for Nov.: In the 125, to drive east of Morris's shaft, in the elvan, on the north side of the lode, and to carry 2 ft. of the lode in the back of the end, as directed by the agent, by six men, stented 2 fathoms, at 10l. per fm.—taken by J. Seymour and Co. No. 2 cross-cut to drive south in the 110, west of Morris's engine-shaft, by six men, stented 9 ft., or the month, at 22l. per fathom, by J. R. Cundy and Co. Morris's engine-shaft to divide and carry the lode from the 110 to the 125, bed-plank, ladder-road, &c. taken by J. R. Cundy and Co. To make the main haulway, by three men, per bargain, at 16l. 10s. per fathom—taken by J. Mitchell and Co.

**WEST TALVOLDEN.—C. Thomas,** Oct. 20: We have now completed winning the shaft down to the 20, and are now timbering it. As soon as this is finished we shall begin to break away on lode going east at the 20, where we have a fine course of ore 10 in. wide. There is also appearance a valuable piece of ground above the 20, extending east to the cross-course.

**WHEAL ADAMS.—R. Moore,** Oct. 20: The plat at the 40, in the south engine-shaft, is completed, and at the north end of the plat we have risen 8 ft., in order to make a tip-pit; since which we have driven west and cut the flooken running on the eastern blende lode, having a branch by its side, about 4 in. wide, carrying lead and blende; the lode is large, but we have not got through it as yet, owing to reasons for so doing, two-fold—to make a more convenient for passing the lode into it, and secondly, to keep the lode open, which was the intention of the 20, fearing that it would do mischief in the shaft should any quantity be there before I get through the run. I am more than ever convinced that the eastern blende lodes, as seen at the old engine-shaft, have never been worked upon in this mine, for we have passed through two runs of flooken in the shaft and in the plat, several fathoms east of the level driven by the former company. I intend to push this cross-cut with all possible speed to reach the western lode, which I hope to accomplish in the early part of next week. I expect, also, to raise the level, through the old lode, to the 30, dividing it into two parts, while we are now cutting that more lead is mixed away at the 28. The masons, together with the working engineer, are getting on with the buildings and machinery as fast as they can. In opening the lead to bring in the water, we have passed over the backs of two north and south lodges, carrying blue flooken; one is about 80 fms. and the other about 100 fms. west of the mine; these appear to be a continuation of the lodes which I discovered in the road above the mine, and mentioned the same some time since.

**WHEAL AGAR.—W. Roberts,** Oct. 19: The following bargains were set on Friday last.—The engine-shaft to sink under the 70, by twelve men, at 37l. per fathom. The 70 east, by two men, at 5l. per fathom; lode 1 foot wide, with stones of ore, at 7l. 10s. per ton, by two men, at 7l. per fathom. The 60 east, on south lode, by two men, at 37l. 10s. per fathom. The 50 cross-cut, north of Windstow shaft, by four men, at 5l. 10s. per fathom. The 50 to drive west of the eastern shaft, by four men, at 4l. per fathom, lode ¾ ft. wide, producing 1½ ton of ore per fathom. A stope in back of the 50, by six men, at 4l. per fathom; lode 3 feet wide, producing 3 tons of ore per fathom. Another stope in the back of the same level, at 4l. per fm., by six men; lode 2 feet wide, worth 2 tons per fm.

**WHEAL ARTHUR.—T. Carpenter,** Oct. 18: Western Mine: The 40 cross-cut south is progressing well, and we hope to cut the lode in a few fathoms more driving. The adit level west, on south lode, is not looking quite so good, but this lode is subject to changes. In the same level east the lode is still small, containing a little ore. Eastern Mine: The 40 cross-cut, north of the 30, has divided into two parts, which are now cutting together again: lode 4 ft. wide, and in an improving state. There are signs of the north lode in the 20 cross-cut north, principally capel in the end and much water. Full particulars shall be given in next week's report for the meeting.

**WHEAL CONSTANCE.—A. Cundy,** Oct. 14: Since the last meeting of the adventurers of this mine, we have sunk the engine-shaft 13 fathoms, 7 fathoms perpendicular only, and the remainder on the incline of the north lode to a 30 fm. level. We have opened on the course of the great north lode in the 30 fathom level, 32 fathoms east and west; the lode will average about 4 feet wide, composed of quartz, flooken, lead, and mudnic—a very kindly lode. We have driven a cross-cut south 9 fathoms, and intersected two others; hence, we drove east on fms. 3 ft., and seeing that it would intersect the lode further south, we cut off the best to suspend this end for the time, which is done. The south lode which we have cut this week is altogether new in the mine; we never saw it in the level above, it is about 1 foot wide, nearly perpendicular, and very rich in mudnic and blende; I think this lode will make lead in a short time. We are still driving on the cross-cut, as I am strongly of opinion that there is another point of the lode that we have not cut yet. At Penhallow Moor, we have driven 40 fathoms on the course of Waters's lode, which is about 8 feet wide, composed of quartz, mudnic, and lead, and carries a shaft 7 fathoms. I think the most important object we have in view is to sink the elvan level, and connect it with the 20, and if we succeed, we shall be able to level to cut it, and there is no doubt but that you will have a good mine at the intersection, as well as at Gargoll, the adjoining mine.

**WHEAL CREBOR.—J. Giffard,** Oct. 19: The lode in the 12, west of Walter's winze, is still full 3 feet wide, and producing good stones of black and yellow ore occasionally. We are driving by the side of the lode in the 12, east of Walter's winze, and we intend to take it down in the latter part of the week. No alteration in the tribute department.

**WHEAL EDWARD.—M. H. East,** Oct. 16: North Lode: The sinking the diagonal shaft is being pushed on with all possible dispatch, and we hope to reach the 82 fathom level by the end of next week; no lode taken down this week. The sinking the winze below the 71 fathom level east is also being pushed on expeditiously, the lode in which is large, and looking very satisfactory at present. In the 71 fathom level west we are driving a cross-cut south in search of a part of the lode which split off a few fathoms below the 71 fathom level, and which we thought it best to suspend this end for the time, which generally being small, consequently, it is possible that it is not the main lode. The lode in the 52 west is 3 feet wide, composed of capel, spar, gossan, mudnic, with occasional stones of copper ore.—South Lode: The lode in the 71 east is 4 feet wide, interspersed with mudnic and ore throughout; the end is rather spare for driving at present. The lode in the 71 west is 3 feet wide, carrying a leader of mudnic and ore, averaging about 6 in. wide, worth about 1 ton of ore per fm. The lode in the back of the 71 east is worth 3 tons of ore per fm. The lode in Thomas's stope, in bottom of the 50, west of winze, is about 10 in. wide, and contains a lot of iron pyrites, and some garnet, and is worth 2 tons of ore per fm. There is no alteration to report in any other part of the mine.

**WHEAL EMMA.—W. Goldsworthy,** Oct. 21: The engine-shaft is now about 10 fms. below the 46. The 46 presents no change to notice since last report. In the 46 west we have met with a decided improvement—a large and very kindly lode, worth 12l. per fm.; I hope to give further particulars in my next, as we have only just begun to drive on its course, at 50s. per fathom.

**WHEAL GRENVILLE.—G. R. Odgers,** Oct. 16: The lode in the engine-shaft min contains its size as far as we can see by the walls, because we have not taken down any lode for the last ten days, there being a number of droppers coming into it from the south; it looks at present as being split, but I expect to see it again shortly assume a more settled appearance. The composition of the lode in the eastern end is good stones of ore, emerald green, quartz, and pebble—a kindly lode. In the eastern end at the 66 the lode is about 10 in. wide, and contains a lot of iron pyrites, and some garnet, and is worth 2 tons of ore per fm



**WHEAL ELLEN.**—J. Hosking, N. T. Miners, Oct. 21: The diagonal shaft, sinking under the 40 ft. level, is still working well; the lode is larger, but not so rich for copper as when last reported; it is now worth from 25s. to 30s. per fathom. In the 40 ft. east for the last 2 fathoms driving, we have not seen the lode, in consequence of a cross-course having heaved it out of its regular course. The 40 ft. driving west, has a more promising appearance; the lode is 16 in. wide, producing good dressing work for copper. In the 30 ft. driving east, the lode is 18 in. wide, and worth 8s. per fathom. Other parts of the mine remain much the same. On Tuesday last we had a grant of the ground known as Wheal Music east, which joins Tywarthall Mines on the north; we think it will be a valuable addition, as through this run several lodes parallel with the one in which we are chiefly working, which present a very promising appearance.

**WHEAL HARRIET.**—S. Williams, Oct. 18: The lode lately cut in the 100 cross-cut is 1 ft. wide, composed of spar, pyrite, and manganite, with spots of copper ore. The lode in the winze sinking below the 74 is 4 ft. wide, and for length of winze (12 ft.) will produce 12 tons of copper ore per fathom. The 90, 74, and deep adit ends are without alteration since last report. We have to-day put in the underground balance-bob. Our engine and pitwork are now in good working condition.

**WHEAL KITTY** (St. Agnes).—Since last meeting good progress has been made in the different workings. All the principal points are fully occupied, and we are opening and developing the mine as the circumstances of the case will admit. The following are the amounts sunk and driven in the past three months, together with the value of the lode in each of the different levels. The 90 has been driven 4 fms. 3 ft. west of the engine-shaft, chiefly through hard ground; a gradual improvement is, however, taking place, both in the ground and lode, as it is extended out of the influence of the cross-course. The lode in the present end is 18 in. wide, produces good stones of tin, and worth 10s. per fathom. The same level east has been extended 5 fathoms; the lode in the former part of which, near the cross-course, was small and poor; a steady improvement has, however, taken place in the last 2 fathoms driving, the lode in the present end being 2 ft. wide, and worth 8s. per fathom. The 82 west has been driven 14 fms., through a large and promising lode, varying in size from 2 to 5 feet wide, and worth in places 20s. per fathom. In the present end it is 3 feet wide, and worth 16s. per fathom. The same level east has been advanced 3 fms. 3 ft.; the lode in the end is 4½ ft. wide, composed of manganite, jack, and tin, worth 12s. per fathom; 120 tons of manganite have been raised from the end and stopes over the back of it in the past three months; it also produces stones of copper ore. In the 72 west we are sinking a winze to ventilate the lower level, it is now down 4 fms. 4 ft., the lode is 2 feet wide, and worth 9s. per fathom. The same level east has been driven 5 fms. 3 ft. through a lode 2 ft. wide, and worth 6s. per fathom; and this is the size and value of the lode in the end at present, and also of the stopes in the back of the level. Sunny Corner Shaft has been sunk 1 fm. 2 ft., making 2 fms. 5 ft. below the 54, but the water at that point issued into it in such quantities as compelled us to relinquish it, and rise and make the communication from the back of the 72. The 54 east has been extended 6 fms. 1 ft.; the lode in the end is 18 in. wide, and worth 6s. per fathom, which is about the average value of the drive—Holgate's Shaft: This shaft has been sunk 2 fms., and is now down the required depth for a level, the plat and fork cut, and the skip-road brought down complete to the bottom. We shall now commence driving west at this point, where the lode is 2 feet wide, and worth 10s. per fathom. The 65 west has been again resumed, and has been extended 1 fathom; the lode is 2½ ft. wide, and worth 6s. per fathom; we expect an improvement in this end shortly. The rise in the back of the 54 west has been communicated to the winze sinking from the 44, making 10 fms. 3 ft. sunk and rose through; this has opened the tribute ground, and completely ventilated the 54, which is again set to drive west, and opening tribute ground, the lode being 2 ft. wide, and worth 6s. per fathom. In the 54, or bottom of the perpendicular at the engine-shaft, we are cutting ground for an angle-bob; this is now in a forward state, and when completed we shall put in a plunger-lift in the 82, and bring down the wooden rods to that place, as it is absolutely necessary to do so before we commence sinking under the 90, and when this is accomplished the pitwork and lifts will be in a good condition for going down considerably deeper. In the tribute department the stopes are again expected to yield fair quantities of mineral, and the produce in the past quarter quite equalled our output at the same time, we increased our reserves and unworked tribute ground, and we calculate that we have at present over the back of the 90 fm. level 100 fathoms, worth 6s. per fathom, value 600s.; in the 82 west 160 fms., worth 10s. per fathom, value 1600s.; in the 82 east 120 fms., worth 9s. per fathom, value 1080s.; in the 72 east 400 fms., worth 4s. 10s. per fathom, value 1800s.; in the same level west 30 fms., worth 7s. per fathom, value 210s.; in the 62 west 25 fms., worth 8s. per fathom, value 200s.; in the 75, east of Holgate's, 30 fms., at 8s. per fathom, value 240s.; in the 65 west 40 fms., at 5s. per fathom, value 200s.; the 54 west 100 fms., at 6s. per fathom, value 600s.; the same level east, Sunny Corner, 100 fms., at 5s. per fathom, value 500s.; total value of reserves 6060s. There are other pieces of ground in different parts of the mine, but it is doubtful whether they will be all worked on tribute. Our position has therefore, considerably improved within the last few months, but it is owing more to a systematic course of working than to any great improvement in the lodes. Pursuing the same beneficial plan in future, we expect our returns the next three months will equal, if not exceed, the amount raised in the past quarter; and after paying the ordinary, as well as the additional costs of the plunger-lift, rods, bobs, &c., at the engine-shaft, we hope to make about the same amount of profit as in the past quarter.—M. EDWARDS; J. NICHOLAS; T. M. THOMAS, Oct. 9.

**WHEAL MARY ANN.**—Peter Clymo, Henry Hodge, Robt. Knapp, Oct. 21: Pollard's shaftmen are engaged in cutting a plat in the 160. The lode in the 150 north is 2 feet wide, and worth 3s. per fathom; in the same level south it is 2 feet wide, and worth 5s. per fathom. In the 140 north it is 2½ ft. wide, and worth 10s. per fathom; in the same level south it is 3 feet wide, and worth 10s. per fathom. In the 130 north it is 2 feet wide, and worth 6s. per fathom; in the same level south it is 1½ ft. wide, and worth 8s. per fathom. In the 120 north it is 3 feet wide, and worth 20s. per fathom; in the same level south it is 2 feet wide, and worth 22s. per fathom. In the 110 north it is 2½ ft. wide, and worth 10s. per fathom. Clymo's engine-shaft is sunk 16 fathoms under the 95. The stopes and pitches are producing much as usual. We have this day sold to Mr. Thos. Somers a parcel of lead ore, computed 90 tons, at 27s. 10s. 6d. per ton.

**WHEAL MARY ENMA.**—W. Doble, Oct. 21: The men are getting on with the sinking of Lane's engine-shaft below adit, the same being about 9½ fms. from surface; they are breaking up the rocks of copper and tin from the lode in sinking; better stuff is not to be seen in many mines to the same depth. We are getting on well with the new adit. I expect to have the water-lift down this week.

**WHEAL MAUDLIN.**—W. Tregay, Oct. 16: The water is now down below the bottom of the 16.—South Mine: We have met with a slide in the adit, which has for the time changed the underlay of the lode from north to south. The lode is composed principally of gossan, manganite, and capel.

**WHEAL RUSSELL.**—A. Barratt, Oct. 21: There is an improvement in the winze sinking under the 62, east of the cross-course; the lode is 4 feet wide, worth from 4 to 5 tons of ore per fm. There is nothing else new in the mine.

**WHEAL TERIDY.**—J. Pope, Oct. 21: In the 60 cross-cut south there is no change since last reported. In the 60 east, on the counter lode, the lode is 9 in. wide, producing good stones of ore, with a promising appearance. In the 50, east of boundary, the lode is 20 in. wide, with stones of ore. In the tribute department there is nothing new.

**WHEAL TREFUSIS.**—Z. Carkew, Oct. 21: In the 67, driven north 4½ fathoms towards the north lode, the ground is a little favourable for driving. In the 67 east, driven about 3 fms., the lode is 1½ ft. wide—ground favourable for driving. In the 55 east the lode is 4 ft. wide, composed of spar and gossan, with stones of copper ore. The stopes in back of the above level are yielding tinstuff, worth about 6s. per fathom. In the 42 towards the north lode, the ground is a little favourable for driving. In the 42 east, driving south, towards the south lode, there is no alteration in the ground. In the 30, east of Pollard's shaft, the lode is 3 ft. wide, yielding tinstuff, worth 3s. per fathom. In the 30, south of Pollard's shaft, no lode taken down yet. In the 15, east of Nicholls's shaft, the lode is 2½ ft. wide, composed of soft spar and pyrite, with a little tin of low quality. We shall have Nicholls's shaft complete to the 42 by the end of next week. The tribute pitches are without alteration since last report. We sold, last week, black tin to the amount of 337s.

**WHEAL TRELAUNY.**—Wm. Jenkin, Wm. Bryant, T. Grenfell, Oct. 21: Smith's shaftmen are now engaged in cutting ground for bearings and cistern. The cross-cut in the 142, at Smith's shaft, is extended east 8 ft. towards the lode. The 142 north end having reached the slide seen in the upper levels, it has reduced the lode in value to about 10s. per fm. We have no alteration to notice in the south end in this level. The lode in the 132, north of Smith's shaft, is 2 ft. wide, worth 8s. per fm.; the lode in the winze sinking below this level, south of Smith's shaft, is 1 ft. wide, worth 6s. per fm. The lode in the 122, south of Chippendale's shaft, is 2 ft. wide, worth 6s. per fm.; in the same level north it is 2 ft. wide, worth 8s. per fm. In the 120 north it is 1½ ft. wide, worth 7s. per fm.; the winze that was sinking below this level is holed to the 132.—South Mine: Trelawny's shaft is sunk 9 fms. 4 ft. under the 142. The lode in the 142, south of the shaft, is 2 ft. wide, worth 8s. per fm.; in the same level north we are driving by the side of the lode. In the 130 north it is 3 ft. wide, worth 10s. per fm. In the 107 north it is 2 ft. wide, and worth 5s. per fm. The stopes and pitches are producing much as usual. We hope to sample on Friday next, all being well, about 80 tons of crop lead ore.

**WHEAL TREMAYNE.**—R. Williams, J. Williams, Oct. 18: At the boundary engine-shaft, the shaftmen are sinking the boundary winze under the 113, on course of Allen's branch, which is yielding low price tinstuff. We expect this winze will be communicated with the 123 next week. In the 123, east of the same shaft, Allen's branch and the engine lode have formed a junction with each other, being now both in the same level, about 2 feet wide, worth 30s. per fathom, with a very promising appearance. In the 113, east of Allen's shaft, on Allen's branch, we have cross-cut north and intersected the main branch, which looks strong, having a kindly appearance, worth 16s. per fm. The stopes in back of the same level are worth, on an average, 9s. per fathom. The 109, east of the same shaft, on Allen's branch, is suspended for the present, the ground being hard and the branch small and poor. The stopes in back and bottom of the same level are worth, on an average, 12s. per fm.; the bottom of the stopes in the above level are disordered by floors of spar, consequently they are not yielding so much tin. The stopes in bottom of the 73, east of the same shaft, on Allen's branch, is worth 10s. per fm.

**WEST TREVELYAN.**—John D. Osborn, Oct. 16: The cross-cut driving north from Cater's shaft, in the 20, to intersect Park lode, is driven 2½ fathoms; we hope to see the lode next week, should the ground continue favourable for driving. The 10, driven west from Cater's, on Park lode, is driven 2½ fms. from the crossing; we have broken some good grey and black copper ore from this end this week, but the lode is not looking quite so well at present, in consequence of a capel course falling in. The adit level, driving west of Cater's, on Park lode, is driven 16 feet from the winze. We are driving on the south part of the lode; the lode is large, composed of quartz, gossan, iron, and occasionally spotted with grey copper ore.

**WHEAL VENTON.**—T. Richards, Oct. 15: We have been obliged to divide the bottom and drawing lift in the engine-shaft, which has caused a delay in extending the cross-cut west; however, since our last adit we have discovered a small branch, containing manganite and quartz, and I hope we are not far from the lode. We shall be seeing the lode in the 50 at Trewartha in a few days; we have already the capel of it.

**WHEAL WREY CONSOLS.**—Peter Clymo, W. Hancock, R. Boskilly, Oct. 21: The engine-shaft is sunk 5 fms. 2 ft. under the 74. The lode in the 74, south of the engine-shaft, is 3½ ft. wide, producing 5 cwt. of lead per fm.; in the same level north it is 5 ft. wide, producing 7 cwt. of lead per fm. In the 64 south it is 3 feet wide, producing 8 cwt. of lead per fm.; in the same level north it is 3½ ft. wide, producing 4 cwt. of lead per fm. In the 54 south it is 2 feet wide, producing 8 cwt. of lead per fm.; in the same level north it is 3 ft. wide, producing 5 cwt. of lead per fm. In the 44 fm. level north it is 1½ ft. wide, producing 4 cwt. of lead per fm.

**WILLOW BANK.**—W. Paull, Oct. 18: During the past month the engine-shaft has been sunk 1 fm. 3 ft., through a powerful lode, composed of clay-slate and spar, with spots of lead ore occasionally; sunk altogether below the 30 fm. level 6 fm. 4 ft. Our shaftmen were hindered the best part of the past week in consequence of the wet weather, our engine not being able to keep the water in fork. I put four of them in the cross-cut and the others in the 30 west during the time the water was in the shaft. The 30 east has been driven 3 fms. 3 ft., where stones of ore are met with occasionally, but not sufficient to set a value on as yet. The cross-cut south of the 30 has been driven 1 fm. 2 ft., nothing of any consequence is yet met with. Saturday last being our setting day, the following bargains were set:—The 30 east, by six men, 2 fms. stent, or the month, at 7s. per fathom. The cross-cut to drive south, by two men, at 7s. 10s. per fm. The shaftmen have not completed their contract; they must go on at the same price.

## The Mining Market; Prices of Metals, Ores, &c.

METAL MARKET—LONDON, OCT. 22, 1888.

COPPER.			BRASS.		
Copper wire	.....p. lb.	0 1 3/4-1 1/2	Sheets	.....	104-110.
ditto tubes	.....	0 1 1/2-1 1/4	Wire	.....	9 1/2-10.
Sheeting & bolts	.....	0 0 11-12	Tubes	.....	124-134.
Bottoms	.....	0 11 1/2-1 0	FOREIGN STEEL.		
Old (Exchange)	.....	0 0 9 1/2	Swedish, in kegs (rolled)	.....	none.
Best selected	.....p. ton	101 0 0	Swedish, in kegs (hammered)	.....	20 10 0-21
Tough cake	.....	98 0 0	Swedish, in kegs (rolled)	.....	21 0 0-22
Tin	.....	98 0 0	English, Spring	.....	18 0 0-23 0 0
South American	.....	90 0 0	Quicksilver	.....p. lb.	0 1 11-2 0
IRON.			SPELTEN.		
Bar, Welsh, in London	.....	7 0 0-7 10 0	Foreign	.....	22 15 0-23 0 0
Bar, to arrive	.....	6 15 0-6 10 0	To arrive	.....	22 15 0-23 0 0
Nail rods	.....	7 10 0-7 5 0	SING.		
Stafford, in London	.....	8 0 0-9 0 0	In sheets	.....	31 0 0-32
Bars	.....	8 10 0-9 10 0	TIN.		
Hoops	.....	9 5 0-9 15 0	English, blocks	.....	121 0 0-(nom.)
Sheets, single	.....	9 10 0-10 10 0	Ditto, Bars (in barrels)	.....	122 0 0-123
Fig. No. 1, in Wales	.....	3 15 0-4 15 0	Ditto, Refined	.....	126 0 0-127
Refined metal, ditto	.....	4 10 0-5 0 0	Banca	.....	123 0 0-124
Bar, common, ditto	.....	5 5 0-6 10 0	Straits	.....	120 0 0-121
Ditto, railway ditto	.....	6 10 0-6 15 0	TIN-PLATES.		
Ditto, Swedish, in London	.....	12 10 0-13 0 0	IC Charcoal, 1st qua. p. bx.	.....	1 12 0-1 13 0
In stock to arrive	.....	—	IX Ditto 1st quality	.....	1 18 0-1 19 0
Fig. No. 1, in Clyde	.....	2 14 0-2 15 0	IX Ditto 2d quality	.....	1 10 0-1 11 0
Ditto, in Tyne & Tees	.....	2 19 0-3 2 6	IX Ditto 3d quality	.....	1 16 0-1 17 0
Ditto, forge	.....	2 17 0-2 18 0	IX Coke	.....	1 8 0-1 9 0
Staffordshire Forge Fig.	.....	4 10 0-5 0 0	IX Ditto	.....	1 11 0-1 12 0
Welsh Forge Fig.	.....	3 0 0-3 5 0	Canada plate, p. ton	.....	15 0 0-15 5 0
LEAD.			In London; 20s. less at the works.	.....	—
English Fig.	.....	21 10 0-22 10 0	Yellow Metal Sheathing, p. lb.	.....	9 1/2-10.
Ditto sheet	.....	22 10 0-23 0 0	Wetterstedt's Pat. Met. . . p. cwt.	.....	2 2 0
Ditto rod lead	.....	27 0 0-28 0 0	Indian Charcoal Pigs	.....	— 7 10 0
Ditto white	.....	27 0 0-28 0 0	In London	.....	—
Ditto patent shot	.....	25 10 0-26 0 0	At the works, 1s. to 1s. 6d. per box less.		
Spanish	.....	20 0 0-20 10 0			
American	.....	—			

REMARKS.—Our market for metal has increased in firmness, and sellers have been less disposed to realise, unless they could obtain their own prices.

**COPPER.**—The demand for cake and tile has been tolerably good, but for manufactured enquiries still continue limited; holders of foreign have exhibited more disposition to do business, and several parcels have been sold from 102s. 10s. to 103s. per ton. There is yet a large quantity in warehouse here unsold.

**IRON.**—The ironmasters appear to be fairly supplied with work, and prices assume a favourable tendency. Rails are in good demand, and quotations are steady at 6s. 10s. per ton. Staffordshire remain as last quoted. Scotch pigs have been quiet at 54s. to 54s. 6d., mixed numbers, g.m.b., f.o.b. in Glasgow.

**LEAD.**—English is dull, and the market is not unlikely to recede.

**SPELTEN.**—The market has been again weakened by the pressure of a few parcels for sale offering at about 5s. per ton under last quotation.

**TIN.**—English tin has been advanced to-day 3s. per ton on blocks and bars, and 5s. per ton on refined, making present price of blocks 121s., and refined at 126s. per ton. Banca and Straits have both been gradually advancing during the last fortnight, and prices in some instances have been paid in anticipation of an advance in English; the amount of business doing is not large, and seems barely to justify any increased rates.

**TIN-PLATES.**—Makers are a shade firmer, especially for charcoal. Coke plates are rather neglected.

**LIVERPOOL, OCT. 21.**—Since last report we have had a better feeling existing in our metal market, both as regards the present stability of prices, and with respect to the future prospects of the trade generally. Buyers apparently have increased confidence in giving out what orders they may have that prices have reached their lowest, and that they cannot expect to purchase on more advantageous terms than those now current. The result observable is a steady demand for all kinds of manufactured iron, increasing, as regards Welsh bars and rails, with stiffening prices. Staffordshire qualities have been in moderate request only; still there is no disposition whatever to reduce prices, but rather to uphold them, as a good trade is confidently expected in the coming spring. The price of Scotch pig-iron has preserved a dull uniformity during the week, and the quotations of to-day present no alteration from those of the 14th. Business has been comparatively very limited, either for export or for speculation, and the shipments show a falling off as compared with the corresponding week of last year, being 8469 tons, against 10,148 tons respectively. The stocks continue to increase, as the local consumption is still much reduced; whilst at the same time the make is very large, the full quantity of furnaces being in operation. Whatever the stocks may be, however, they will doubtless be absorbed by the enormous quantities of iron that will be required to carry out the projects for sanitary and other purposes now in contemplation. The copper market shows no alteration either in demand or quotations; the current requirements are sufficient to keep prices steady. Tin is firm in price, with a good demand for home consumption especially; for export orders are light. In tin-plates there is not much doing, although during the last day or two there has been, if anything, increased enquiry; quotations are unaltered. A moderate business has been done in lead at current rates; several parcels in second hands have been disposed of under our quotations. The following are the quotations:—Iron: Merchant bar, 6s. 10s. to 6s. 15s. per ton.—Tin: Common block, 118s. per ton; common bar, 119s.; refined block, 121s.—Tin-plates: Charcoal, IC, 30s. to 31s. per box; coke, IC, 24s. to 25s.—Lead: English sheet, 23s. per ton; English pig, 21s. per ton.—Copper: Cake and tile, 98s. per ton; best selected, 101s. per ton; sheeting and bolt, 11d. per lb.—Yellow metal sheathing, 94d. per lb.—Blistered, 30s. to 40s. per ton; spring, 18s. to 24s.; cast and shear, 50s. to 60s. per ton.

**GLASGOW, OCT. 20.**—Our pig-iron market has remained almost without any variation in price since our last report, and very few transactions have taken place; we closed to-day nominally 54s. 6d., without business. No new feature has presented itself requiring comment. No. 1, Gartsherrie, 60s.; No. 1, g.m.b., 58s. 3d.; No. 3, ditto, 52s. 9d. Shipments: Foreign, 3711 tons; coastwise, 4758 tons=8469 tons, against 10,148 tons last year.

**NEW YORK, OCT. 7.**—Scotch pig-iron has been in steady demand, but the price remains without alteration, the closing quotation being \$21 to \$22 cash. For copper there has been but very little enquiry, the sales being entirely limited to small parcels, at 23½ c. for Lake, and 23 c. for Baltimore. In yellow metal a slight advance has taken place, the present price being 22 c. Old boiler-plates are in demand at 20½ c.; and braziers' copper at 31 c., six months. Block tin is in good request, and the prices show an upward tendency; we note sales of 500 slabs of Banca at 28 c. cash. Straits are quiet, holders being firm at 28 c., six months. For tin-plates there has been but very little enquiry, except in a jobbing way, small parcels having been sold freely at \$9 75 c., six months. In lead there has been but very little doing, and sellers have experienced great difficulty in obtaining previous quotations. Spelter is quiet at 6 c. to 6½ c., six months.

In the COAL MARKET, there has been a great improvement during this week, and a general advance of from 6d. to 1s. per ton has taken place in all descriptions of coals. On Monday, out of the 77 ships at market only 5 were left unsold, the prices being—Best Wall's End, 18s. to 20s.; ditto second quality, 17s. to 19s.; manufacturers', 14s. 6d. to 16s.; Hartley's, 14s. 6d. to 15s. 6d. On Wednesday, there was a rather better supply, 98 ships being at market, of which only 80 were sold; the prices remaining without alteration. Yesterday, but very little business was done, and that only in manufacturers' and second quality coals, there being no best at market; only 24 ships were reported, of which 17 were sold.

In SALTPETRE, during the past week, there has been a fair amount of business doing. We note sales of 2060 bags of Bengal, at a reduction of 1s. to 1s. 6d., the prices obtained being—For 3½ per cent. refraction, 43s.; 5½ per cent. refraction, 45s.; 4½ per cent. refraction, 45s. 6d.; and 8½ per cent. refraction, 48s. We also note sales of 813 bags of Bombay, refraction 55½ to 33 per cent., at 32s. 6d. to 35s. The quantity landed last week was 76 tons; delivered 240 tons; leaving in stock 2325 tons, against 6629 tons in stock this time last year.

**EXPORTS OF COAL IN SEPTEMBER.**—From Laird and Co.'s Monthly Statistics of the Coal Trade, it appears that the total exports last month were 650,724 tons, showing a decrease, compared with the corresponding month of last year, of 7808 tons. The total exports from Jan. to Sept., inclusive, were 4,880,048 tons, being an increase, compared with the same period of 1887, of 103,556 tons. During September the Northern ports exported 425,901 tons, increase 21,038 tons; Yorkshire ports 30,039 tons,

decrease 4422 tons; Severn ports 128,829 tons, decrease 4829 tons; Liverpool 35,105 tons, decrease 13,415 tons; and Scotch ports 35,850 tons, decrease 6240 tons.

This time last year the standard for copper ore was 137s. 18s., at a produce of 6½; it is now 126s. 18s., produce 6½. At that time we were suffering from a monetary crisis, and the trade in copper, as well as in every thing else, was depressed and uncertain. We have now an abundance of money; and with trade reviving, how are we to account for the fact that the miner is getting 10s. per ton less for his copper? Notwithstanding this, however, the dividends for the past quarter, as we stated last week, amount to a considerable sum, and for the nine months of this year 261,127s. 14s. If we look at shares—and that concerns us most in this article—we shall find, generally speaking, they have gone down with the standard, and considering the dividends they have paid, and are likely to pay, there is a fair margin for a good rise in many. Basset shares, about 12 months ago, were about the same price as now. South Frances has paid 30s. per share this year in dividends, and shares are 60s. lower. Buller has paid 40s., and shares 100s. lower, but the mine is poor. West Basset fell from 26s. to 21s.; North Basset, 16s. to 9s.; Great South Tolgus, 16s. to 14s.; Alfred Consols, 13s. to 8s.; Mary Ann has paid 6s. 15s. per share this year, and are now 46s., whilst last year they were 48s. We might go on swelling the list, showing how, from the existing depression, shares have fallen, in some instances far below their value, and also that with a little discrimination and advice several might be selected for the probability of good rise as the price of metals advances, and more confidence is established, while the advance to-day of 3s. per ton in the price of tin augurs well for tin mines, and fully justifies the conclusion that the metal market is tending upward.

Since our last SHARE MARKET for mines has been moderately active, and prices well supported. It was only last week that we referred to the early prospect of good news from East Russell, and on Wednesday information was received that the lode in the 88 fm. level had improved to 2 tons of rich ore per fm. Shares became in demand, and rose from 5½ to 6½, and leave off at 6½ to 6½. To estimate the value of this discovery, and one which we have for months past pointed out as probable, it must be remembered that in the 66 fm. level a course of ore was gone over for 42 fms. in length, and a winze sunk near the western end of it 9 fms. deep; the lode in many places worth over 100s. per fm., but averaging for the 9 fms. 80s. per fm. The lode now coming into ore in the 88 fm. level is nearly 30 fms. behind this winze, and supposing this level continues in a course of ore, and of which there is now every probability, for at least as long as it did in the 66, there would be, taking the inclination of the lode, about 26 fms. of ore ground in depth by 42 fms. in length, and which, estimated at the value of the winze, would give about 30,000s. worth of ore. This may be a high estimate, and probably it is, though we hope, for the sake of the mining interest, which requires a good discovery to stimulate it after such a long season of depression, that it may prove correct. North Wheal Robert, 3 to 3½, and a fair business doing. Providence Mines are much in favour, and shares advanced to 68s. 70s. Margaret shares advanced from 57 to 62, 63. Wheal Mary Ann, 45s. to 46s., and a good demand. Wheal Margerys are flat at 8 to 8½. Tolvaddens have been dealt in at 6 to 6½. Wheal Kitty (Lelant), 8 to 8½. Wheal Unys have advanced to 8½, 9, and have been in fair demand. Wheal Arthur, 15s. 6d. to 16s. 6d., and dealt in. Redmoor, 6s. to 7s.; the mine has sampled 22 tons of lead ore; and as the 80 east, on Kelly Bray lode, has been communicated with the winze from the 70, some copper pitches will now be set. Trelawny, 25 to 26. Ludcotts not quite so firm, at 27s. 6d. to 32s. 6d. Cradock Moor, 25s. North Frances have been more dealt in, at 6½ to 6½, and leave off 6½ to 6½; the lode continues of a very promising character at the shaft, and in the 60 end west the south part is daily expected to be cut, the granite being favourable. Grambler and St. Aubyns have been in request, and advanced to 135, 140; the near approach to cutting the north lode has created a stir in the shares. Alfred Consols, 8 to 8½; at the meeting the dividend was 2s. 6d. per share. West Stray Park, 30s. to 35s., and mine looking better. Stray Park, 3 to 4; some interest attaches to the progress of the mine just now, as in a few days the water will be in fork to the 140, when good ore ground is looked forward to. Drake Walls, 20s. to 25s.; a good lode is said to have been met with here. Tincroft, 3s. to 3½, and more business doing in them. Bryntalys advanced to 5½, 6, Basset, 20s. to 21s.; West Seton, 280 to 285; Sordridge Consols, 19s. to 21s.; Devon and Courtenay, 12s. 6d. to 15s.; Wheal Grenville, 25s. to 30s.; Pendle, 3s. to 3½; Vale of Towry, 10s. to 18s. Tamar Consols, 13s. to 15s., and a good business doing. Rosewars have been quiet at 31 to 33, though an improvement is reported in the 46 west, going towards Bush's shaft. North Minera, 5½ to 6½; St. Day United, 10s. to 12s. 6d.; West Grenville, 7s. 6d. to 8s. 6d. Carn Breas have been in much request at 55 to 56, but few sellers. West Frances, 11 to 12; Wheal Harriett, 15s. to 17s. 6d. Old Tolgus United Mines continue to improve, and will soon sample 30 tons of copper ore, in addition to blende. East Basset, 95 to 100. Great South Tolgus, 14 to 14½; at the last meeting a dividend of 5s. per share was declared, and 8s. expected next time. Lady Bertha, notwithstanding the reported improvements, declined to 10s. 6d., owing, it is said, to upwards of 1000 shares being forced on the market for sale; afterwards the market rallied, and left off 11s. 6d. to 12s. 6







# THE PROGRESS OF MINING IN 1857, BEING THE FOURTEENTH ANNUAL REVIEW.

By J. Y. WATSON, F.G.S., Author of the *Compendium of British Mining* (published in 1848), *Gleanings of Mines and Minerals*, &c.

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## Notices to Correspondents.

•• Much inconvenience having arisen, in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be regularly sent on receipt: it then forms an accumulating useful work of reference.

**LIMITED LIABILITY.**—Will you be kind enough to answer the following question?—Supposing a company formed under the Limited Liability Act, with a capital of 1000l., in 500 shares of 2l. each, and the shares all paid-up, and a debt was incurred of 500l. beyond the paid-up capital: who are the parties liable?—DAKOT. [In the case put no one would be liable to pay the debt of 500l. incurred beyond the company's capital. The property of the company would be answerable to satisfy such debt. This is clearly stated by the Joint Stock Companies Act, 1856, sect. 61, which enacts:—"That in the event of any company being wound-up by the Court, or voluntarily, the existing shareholders shall be liable to contribute to the assets of the company to an amount sufficient to pay the debts of the company, and the costs, charges, and expenses of winding-up the same, with this qualification, that if the company is liquidated no contribution shall be required from any shareholder exceeding the amount, if any, paid on the shares held by him."]

**WOLFRAUM ORES.**—Observing several references lately to these ores, can any of your correspondents inform me, through your Journal, what price per ton they will realise, and to what purpose they are usually applied? I understand that many tin mines produce it, and that if there were a demand for it plenty could be brought into market.—R. W.: Oct. 21.

**COALA MINING COMPANY.**—This company is now in liquidation. The principal creditor is the proprietor of the land, he at the same time being a large interest in the mine. From the reports which have appeared, it seems that the gentleman who is appointed liquidator is one of the parties in the firm of which the creditor is the head. This may be all well, but certainly look that some uninterested party among the old shareholders should be deputed to look after their interests. Mr. Richard Glanville was there for a considerable period. He knows the property well, having at several periods been underground; and there are many who have great confidence in him, as they are aware that his reports would be based upon what he has seen, and not be mere hollow skimmings at the surface without going underground, as practised by many gentlemen who now undertake not only to visit, but likewise to certify, mining properties, which they render in every degree admissible, and not entertained, as they should be.—J. B.

**ROYAL GEOLOGICAL SOCIETY OF CORNWALL.**—In reply to Mr. Pearce's enquiry, Mr. Wm. Jory Henwood said that the Parry Copper Mine, Anglessea, was wrought in clay-slate. **COLLIERY INSPECTORS' FINES.**—Can any of your correspondents inform me whether the law relating to the inspection of coal mines, or any law, entitles a Government Inspector to take half the penalties imposed, which any colliery assessor is not only permitted, but acted upon? If this be true, no wonder that the inspection in some places is conducted with a view to fine, and not to secure safety in mines, or to save life.—H. G.

**MITCHELL'S CRUSHING AND AMALGAMATING MACHINES.**—A few months since I addressed you on this subject, being of opinion that the public would benefit materially by the introduction of these machines, if it could be proved their practical effect realised the anticipations of the talented inventor, since which no attempt has been made to account for such failure in a gentleman otherwise so intelligent. Surely, Mr. Mitchell, or those with whom he is acting, should state, for the information of those concerned, what progress is making to introduce the machine, and whether its merits are appreciated by those who have had an opportunity of examining them. Let me relate an incident within my own knowledge.—I am acquainted with a gentleman who invented a brick and tile making machine, nearly a quarter of a century ago, which obtained the prizes of the day. He was offered by a body of gentlemen and noblemen farmers 20,000l. for his patent. Some higgling, peddling mercantile friend advised him not to accept less than 25,000l.; he, therefore, declined the magnificent offer. Some few months passed, and other inventors, profiting by his ideas, made improvements, which so cheapened and simplified the process that my friend's was laid on the shelf.—Z.

**NEWTOWNSHIRE MINING COMPANY.**—Mr. George Harrison, a former manager of the mine, claims the merit of the discovery about which so much discussion has arisen, in preference to either Messrs. Rickard or Silas Evans. Mr. Harrison had a difference with the company, and wrote a pamphlet in his justification, which contains into a very full explanation of the mining operations at the Newtowns Mines.

**TRELAWNEY MINING COMPANY.**—I joined this company some years since. I then had great hopes of it; but my long experience now tells me it is merely a succession of calls. We have a committee whom I may say are like so many Bayards, "*Sans lache et sans reproche*." The secretary is a man of unimpeachable integrity. So far so good; yet having expended so much money of their own and other people, I think it would be conducive to the advantage of all parties if they would wind-up, and allow others the opportunities of frittering away their money in the same useless way we have done. It may be well for "*preux chevaliers*" who have plenty of money, to see the thing out, as they term it. Being myself, however, only a poor man, I should like either to have a return of my knowledge when my liability was likely to cease, as I do not wish to play the part of a philanthropist and expensive carter any longer. It may be possibly a great piece of philanthropy to keep the mine going, in order to afford subsistence to the labourers and a salary to the captain; but if the property were abandoned they would find employment elsewhere, and in the course of a few years the mine would be recommended by some pseudo-scientific peripatetic professor to the public notice, and another opportunity would be afforded for Cornishmen again to deal with the Cockneys.—M. G.: St. John's Wood.

**ANGLO-CALIFORNIAN GOLD MINING COMPANY.**—We are told by the *Mining Journal* that the acts of the liquidators are approved, and that the company will be voluntarily wound-up. In the same publication, we are informed that Sir Henry Huntley has obtained a Government situation on the coast of Africa. May his shadow never be less, and he live long to enjoy it, leaving the clever manner in which he has triumphed over those Solons, our directors. We had on that point a Chancery barrister, common lawyer, two or three solicitors, a merchant, an agriculturist, a cute gentleman from Yorkshire and Birmingham, an officer in the army, and yet the slave-chasing knight was more than a match for the whole. He has gone to Africa—why did not the liquidators tell us how they had settled the lawsuit with him; was it a compromise? Did he render any account? and, if so, what was it like? There were formerly some independent shareholders, but lately their voices have not been heard. We were at one period told that the new direction was better than that of Mr. Luke Williams and Mr. William Cheverton, these two were thought cunning men, yet the commodity was carried much for them. A meeting is called for Nov. 1, let us hope that this will be the final, and that the name of the company will only be remembered as the last of the follies of the Californian gold mania, which enriched a few designing individuals, and ruined thousands who were not able to afford it. In many cases the hard earnings of a life were devoured by these harpies, and poverty and misery brought home to many a hearth where heretofore, if not plenty, at least a freedom from want had existed. Previous to the final dissolution, it is to be hoped that some independent shareholders will require a proper balance-sheet, so that, at least, we may have the satisfaction of knowing how the large sum of money subscribed has been prodigally, profusely, and wastefully expended.—F. G.: Oxford.

**CHANCELLORSVILLE GOLD MINING COMPANY.**—In an examination in the Court of Bankruptcy, a few days since, I observed the name of a gentleman there who figures as a director of this company. On that account alone his liabilities were fixed in round numbers at about 18,000l. According to these figures, it would appear that the magnets of Mr. Harris did not successfully rotate for him. His losses were attributed to mining. This I consider is decidedly false, as no legitimate miner would or could have called the Chancellorsville a mining enterprise. Were I to characterise it as it deserves you probably would not allow it to be published. The company is not dissolved, but apparently merged into another. The works at Frodsham I will not allow myself to comment upon, but when we see an association like this, with directors, secretary, staff, &c., existing for several years, and then rendering no account of how they have disbursed the money entrusted to them, and leaving such reports and advertisements as suit their purposes for the time being, can we blame the public for distrust, or the ignorant for imagining that these are legitimate mining adventures?—GALLOPER.

**CORNWALL GEOLOGICAL SOCIETY.**—I much regretted to read your statement that this society was gradually decaying, as it certainly induces anything but a favourable idea respecting the intelligence of the body of which I have hitherto considered it an honour to belong. To hope for any immediate improvement amongst working miners is, perhaps, not so much in vain as some may suppose. I have found many very desirous of improving themselves, but the amount they earn does not admit of their joining scientific societies, or otherwise gaining any large amount of knowledge. Now, the mine captain is very differently circumstanced. He has it in his power to raise himself in an educational point of view to almost any extent he requires, and the consequence is that he is careless of improvement, and frequently really averse to it. If you could make the mine captain generally sensible of the advantages of education, you would do a great deal to elevate mining. At the present time, they seem to be the more cunning rather than the more educated of the mining community, which I should much wish to see changed, and I, therefore, earnestly request every mine captain in the county to give his support, by becoming a member of the Cornwall Geological Society.—A MINER AGENT: Penzance.

**ASHBURNTON UNITED MINES.**—Mr. Emsor, in his remarks on Ashburnton United Mines, speaks of the engine working in a satisfactory manner. Does he really mean to say that he is satisfied with the result of the pumping? Has it not caused enough to state that they have made a great mistake, and that the engine is not forcing the water? Is he not aware that the shaft was full to add on Monday last?—AN INQUIRER.

**PEAT GAS.**—I fully agree with Mr. Bower in many points of his letter, but cannot altogether admit that no advantage is to be derived from substituting peat for coal where peat is particularly plentiful—for example, in the vicinity of the Lige of Ireland. I think that the least Mr. Johnson could do would be to state the precise cost of his apparatus, and how much he considers ought to be allowed for wear and tear per 1000 ft. of gas manufactured. I do not see a practical engineer myself, but it certainly appears to me that the vicinities mentioned would have the advantage. From what has hitherto appeared, Mr. Bower seems to be arguing upon data furnished by himself, and which might probably be proved inaccurate if we had Mr. Johnson's view of the case. Whatever "L. F." may say about the desire of Mr. Johnson to benefit the labouring classes of Ireland, I think that his silence plainly shows he has no wish to diffuse knowledge, or to aid in the advancement of science, by giving an opportunity for the merits of his invention to be discussed.—J. C.

**KAPUNDA MINE.**—A meeting of the shareholders of the Kapunda Mine, South Australia, has been held within the last few days, but I have sought in vain for a report, or any information as to the proceedings on the occasion; nor has any allusion been made to it in the newspapers. I, therefore, wait for the appearance of the *Mining Journal* on Saturday, when, no doubt, every necessary particular will be laid before your readers. It is, in fact, reported that certain persons, deeply interested in the mine, have taken every precaution to prevent publicity being given to its affairs, and are purchasing shares whenever opportunity offers. I am desirous of becoming a holder, from what I generally hear, but wish previously to see a statement of accounts, and learn the probability of success. Also whether the company is incorporated under the Limited Liability Act, or how shareholders are placed with respect to responsibility generally.—A SUBSCRIBER.

[The Kapunda is one of those very few companies which desire to proceed with closed doors, and representatives of the press are invariably excluded from their meetings. The project has the reputation of being of great promise. Probably some correspondent will favour us with details, or a copy of the report, before our next publication. The reason assigned by "A Subscriber" may occasion this unusual reluctance of the executive to furnish information.—Ed. M. J.]

**COLLIERY INSPECTION.**—We cannot publish the letter of "A Lover of Justice" (Wakefield); he should append his name, as a guarantee to the public of the justness of his remarks.

**FALSE QUOTATIONS OF MINING SHARES.**—On reading the remarks of "Speculator" in your valuable Journal, it appears that he means to class mining share brokers amongst those persons who do not individually use the most upright course in expending their clients' capital. This is an unworthy insinuation. Your correspondent, too, is wrong in his remarks with regard to the prices of mining shares being quoted. I consider no weekly or daily paper can quote the prices of mining shares correctly, recollecting that shares rise and fall every hour of the day. I have seen shares one day, Wednesday, 6½; the next day, Thursday, 7½, rising to ¾; the day after, Friday, they have fallen again to 6½. This all before the appearance of the *Mining Journal*, and the Saturday's quotation correctly marks them 6½ on the day of its publication. The same variation may apply to the morning and evening quotations of each day.—A LARGE SPECULATOR.

**TIN-PLATE MANUFACTURE.**—"Inquirer" (North).—The most comprehensive account of the manufacture of tin-plates is contained in the *Transactions of the South Wales Institute of Engineers*. The paper was the first read before that institution, and Mr. Ebenezer Rogers was the author of it. The number of the *Transactions* containing it may be had at our office, price 2s. 6d., and an abstract was published in the *Mining Journal* of May 8.

**WHEAL KITTY** (St. Agnes) report was unavoidably omitted last week.

**"G. G."**—The Wentworth Gold Mining Company was ushered into public notice, under most favourable auspices, in 1852, but little was then known of its operations. At that period there were so many disreputable schemes before the public that it is now useless to analyse their proceedings. Mr. De Salis was connected with this company. Though it excited no particular sensation at the time, it must not be classed with several of the bubble schemes of the day which are now existing and which only secured to the promoters the purpose of plundering fools and enriching knaves. The most feasible plan to adopt in this case is to apply to the London agents under the advice of a solicitor.

**AUSTRALIAN COPPER.**—"B. B." (Antwerp).—The place of business of the (Burra Burra) South Australian Mining Association, and of the Kapunda, is Adelaide, South Australia. The London agents of the Burra Burra are Messrs. J. Morris and Co., Crown-court, Philip-street; and of the Kapunda, Mr. J. D. Kennedy, 11, Broad-street-buildings, City. The Australian and other foreign ore is usually shipped to Swansea, and there sold by consignments, particulars of which regularly appear in our Journal.

**GREAT SHEBA COCKING MINE.**—I received a circular from the secretary (Mr. Eytton) of a meeting of shareholders held Aug. 27, 1857, and in it was embodied a report of the committee, consisting of the Rev. Dr. Emberton, Major York Martin, and Mr. John Boddee:—"Your committee have delayed assembling you before, feeling it necessary, in order to complete their arrangements, to give the mine a personal inspection; and your committee report that the prospects of the mine are better than at any former period. The captain speaks most confidently of the nearness of success. The ore, within the last week, from the shaft at Kelly Hole is of far superior quality to any yet brought up from the mine; and your committee look forward to the cutting of the lode in the 20 to render your property at once highly remunerative." On reading your valuable Journal last week, I find by the report of Capt. Richards that the ore was of inferior quality, and small in quantity in the 10, at Kelly Hole; and the lode in the 20 has now been cut without any ore in it, and very coarse. Who am I to look to to reconcile these statements?—A SUBSCRIBER.

**GREAT SHEBA MINE.**—In reply to the enquiry of "A Shareholder," in last week's Journal, respecting when the next meeting is to be held, I would refer him to Mr. Eytton, of 4, Lothbury, the secretary, who issues the notices. The rules in the cost-book state that the meetings are to be held two-monthly; it is now, however, going on five months since the last meeting was held, or the shareholders (35 in number) consulted.—VERAX.

•• The MINING JOURNAL can be procured at our office by Eleven o'clock on Saturday morning. News-men, therefore, can make the necessary arrangements to have the Journal at the several stations in time to forward by the mid-day trains, enabling many of our subscribers to receive their copies on the day of publication.

## THE MINING JOURNAL Railway and Commercial Gazette.

LONDON, OCTOBER 23, 1858.

The Reports of the Inspectors of Coal Mines for 1857 present much that is interesting, and much to deplore. In the arrangement of the reports, and the general summary prefixed to them, this volume shows a great improvement on its predecessors. The several reports are for contemporaneous periods; whereas the previous volumes were for dissimilar half-years, and were bound up together like a lot of odd pamphlets, from which no general results could be obtained, without devoting considerable time and much patient labour; and even after this expenditure of time and industry, the results were unsatisfactory and incomplete. Another novel feature in these reports is the publication of an interesting and valuable Section of the Coal-measures of Lancashire and Cheshire, by Mr. Dickinson. This section has evidently been got up with great care, and is highly creditable to Mr. Dickinson and the gentlemen he mentions as having assisted him in its preparation.

So much we can honestly say in praise of this Blue Book—we would we could say more—or, at all events, that we could congratulate ourselves that this costly inspection was worth the money expended on it. But when we see, after seven years' experience, that the loss of human life in coal mines has increased, and is increasing, and that during this period 7081 colliers have been consigned to untimely deaths, we have but little heart to praise the Inspectors, or to congratulate the public on the success which has resulted from their labours. So far as their own statistics enable us to judge, we were better without than we are with them; for violent deaths have been gradually increasing ever since their appointment; and there were 135 more deaths in mines in 1857 than there were in 1851; and some of them tell us there are but slight hopes of a diminished fatality in future. For instance, Mr. Dickinson, after eight years' experience, says—"That as the workings in many collieries are now getting deeper, and the workings becoming more expensive to make, more men are being put into the same pit, and that, unless accompanied by improved management, explosions will continue as before, and become more and more fatal, according to the increased number of men working in the same mine." We have ever understood that the best management was always to be found in the largest collieries, and for the obvious reasons that the owners are able to employ the most competent viewers and overmen; and that it is only by the enforcement of strict discipline that a large quantity of coal can be produced, even in the most extensive mines. The whole of the Inspectors acknowledge that there is an increased disposition amongst the owners to

carry out the provisions of the Act of Parliament, and to attend to the suggestions; and if this really be so, and the Inspectors honestly and energetically discharge their duties, we see no reason for the despondent adopted by Mr. Dickinson and others of his colleagues.

But, then, we must have a real and frequent inspection, and not a mere police supervision of coal mines. In our previous remarks on this subject we have given many instances of non-inspection, and many more may be pointed out from the Blue Book before us—as, for instance, the Le Hill explosion, by which 189 persons were killed; yet, as far as we judge from Mr. Morton's report, no inspection of the colliery was made until after this fearful sacrifice of human life, notwithstanding Mr. Morton had at that time been six years and a quarter in office, and had 300 collieries in his district. It is true that for the first five years he had 300 collieries; but as Mr. Hedley had inspected 240 mines per annum, and, in addition, has visited the most dangerous ones three times a year, we see no reason why Mr. Morton should not have been equally industrious in discharging the duties for which he receives such ample remuneration.

It is to this remissness of duty on the part of the Inspectors that we attribute the failure of the Act of Parliament to diminish the loss of life in coal mines. We have closely and unremittingly watched its operation eight years, and we are thoroughly convinced that hitherto the law has effected the object for which it was enacted. Experience clearly points out its defects, and these are in its administration. From what has been said it is too evident that no reliance can, or now ought to, be placed on the voluntary and independent action of the Inspectors, but that their labour ought to be superintended by a chief officer, who should be held responsible to Parliament and the country for the due administration of this law. Whether this officer be a Minister of Mines, as proposed by our esteemed correspondent, Mr. Mather, some years ago, or an Inspector-General, matters less than that he should be thoroughly qualified for the office, and entirely unconnected with the colliery owners, and that his whole time be devoted to the duties of his office.

The entire unfitness of a Secretary of State to discharge the requisite duties must be apparent to everybody; his position, training, and knowledge, are not such as to enable him to superintend and direct the labour of the Inspectors; whilst the multiplicity of his other onerous engagements leave him but little time to attend to these duties. The delegation to other of the power to appoint Inspectors is a proof of his inability to perform the duties imposed on him by the Act of Parliament. Were the appointment of Inspectors vested in a chief competent to form a correct opinion of the qualifications of the candidates, the present grievance of delegating such patronage to a coalowner would be got rid of, and many other anomalies and evils would be remedied.

Nothing, it has been said, and with great truth, is more important to civilisation, and the material strength of nations, than the necessity of keeping up a rapid and efficient communication with and through their several dominions. Those mighty conquerors of the ancient world, the Romans, fully acknowledged the utility of this great axiom, and have left in the Appian Way, and other great routes, magnificent vestiges of their engineering capabilities. In countries wherever their wide-spread dominion has swayed we still find traces of their foresight in the imperishable aqueducts and viaducts, which have remained, and stood the test of centuries, unaffected by the rapine and violence of those mediæval periods, where nothing was sacred to the hand of the despoiler, or the clutch of the semi-barbarised feudal baron. During the dark ages several of these structures were destroyed, many were mutilated, but sufficient remain to show, even now that their renown is passed away, that they were a mighty people, and a pre-eminent race in their time.

If at the present period we look to Spain, Greece, Italy, and Turkey, where the modes of communication are deficient, and at the same time insecure, we shall find that those countries are not advancing in prosperity in a similar ratio to those nations which possess the means of transporting their produce from one locality to another by rapid and facile communication. Many articles, especially those necessary to the nutriment of human life, are allowed in several districts to rot and perish, owing to the great difficulty and expense of transport, and could this be avoided a mutual interchange might take place which would be beneficial to parties who cannot now, owing to these obstacles, fully avail themselves of the benefits which an all-wise and all-seeing Providence has freely accorded them.

The attention of Englishmen at the present time is in a great measure directed to the new colony of British Columbia, situated above the parallel of 49 deg. north, and in close proximity to our excitable, go-ahead cousins—the citizens of the United States—who within the last few years have manifested a great desire to annex neighbouring territories, with the consent of the inhabitants, if it can be peaceably obtained, or, in default thereof, by the more questionable process of filibustering. To prevent these attempts, as we have seen in the case of the notorious WALKER, the federal laws are, if not in effect entirely powerless, at least practically inutile. We read that numbers of Californian adventurers, of the worst class, and of the most reckless character, whose ideas of law are those enunciated by Judge LYNCH, whose principles of morality are based upon the reasoning powers of the bowie-knife and revolver, are now flocking into British territory. We cannot conceal from ourselves the fact, with all Brother JONATHAN'S affection to the mother country, and his amiable tendencies towards England, that the majority of the people have the fixed opinion that the British Crown has no right to rule in the western hemisphere, that the Spanish race must be submerged into the great republic, and that all on the vast continent must be subservient to the States, and worship the almighty dollar.

The Government of this country, it appears, has in a most unusual manner acted with considerable energy. Sir EDWARD BULWER LYTTON has shown himself above the trammels of office, and his quick action must have struck consternation into the hearts of the disciples of red tape and routine. Mr. JAMES DOUGLAS, a gentleman of considerable energy, and practical knowledge of the Indian character, who has long been superintendent of the Hudson's Bay Company, is appointed Governor; and, from all accounts, it would appear that he has been equal to the emergencies he has had to cope with. Law officers are appointed, police are in course of organisation, and a detachment of that most efficient corps the Royal Engineers, under the command of Colonel MOODY, C.B., has been dispatched to the colony.

We mentioned a short time since that the Hudson's Bay Company had long known, even as far back as the year 1736, of the fertility of this territory, which is now in course of settlement, but, from motives which it is not here necessary to analyse, they denied its capabilities, representing it as a sterile region, and unfit for the abode of man. Our readers may remember that, at the time they obtained the lease of Vancouver's Island, we pointed out the impolitic act of the Government of the day. Experience has proved that our inferences then were correct, and that this important settlement should have been immediately declared a Crown colony. Our intention is not here to recur to the past; it is with the present we have now to deal.

In the year 1857 a paper was read, "On the Feasibility of a Communication between the Atlantic and Pacific," at the Geographical Society, from Mr. THOMAS BANNISTER, of the Inner Temple. This gentleman, formerly a Captain in Her Majesty's 15th Foot, and High-sheriff of Van Diemen's Land, had resided some time in California in the year 1851. From San Francisco he addressed several letters on the subject to the Earl of CLARENDON, at that time Secretary of State for Foreign Affairs. In these he stated, that if our territory were to remain without people, or even with a very few inhabitants, it would be absorbed by the United States; and he proposed to connect Great Britain directly with the western coast of America by rail and steam through the northern route, by starting from a point in Hudson's Bay—Canada working her way into the line in any manner she might consider best for her interests. This gentleman proposes the starting point to be Fort York, on the Hudson's Bay, and thence diagonally across the continent to some suitable point in latitude 51 or 52 deg. over against Vancouver's Island, where the straits are narrow, and within fifty miles of Nootka Sound, on the ocean side of the island. This line would run through British territory; and on the route, in addition to the discoveries of gold now so well known, there are deposits of the more useful minerals.

According to the surveys which have been taken, it would appear that the engineering difficulties through the British territory present no great obstacles to the successful issue of the enterprise, whereas on the American side, they offer formidable obstructions; the country from Hudson's Bay to the Rocky Mountains being nearly a dead level. The portion of the line which is in British Columbia, it may be anticipated, will be self-supporting; and if the Canadian Government were to grant lands on both sides of the road which traverses that country, they would be further de-



the resources of the colony, and utilising timber, land, and minerals which are now lying unexplored, and of no avail. The climate is known to be salubrious, and producing fruits and cereals equal to those of lands in Europe under the same parallel; it being a well-known fact that those territories situated on the western coasts of North America are subject to the same severe winters or unhealthy climatic influence as those on the eastern side. A road so constructed would become the highway between the Atlantic and the Pacific, and the direct transit to and from our Indian empire. By this means we should obtain the great share of the carrying trade, and secure the whole of the passenger traffic, which would correspondingly increase as the wealth of the country was more generally diffused, and the knowledge of their capabilities better known. The utility of such a route it is not necessary here to discuss; several have been proposed, and it now only remains for those in authority to select that line which, at the same time that it gives the greatest and best returns, yields the greatest benefit to both colonial and national interests.

The pneumatic process of manufacturing steel introduced by Mr. Bessemer, and which created so much sensation on the occasion of his reading a paper "On the Manufacture of Malleable Iron and Steel without the use of fuel," before the British Association at Cheltenham, and published in a paper of the MINING JOURNAL of August 16, 1856, has now been proved to be of really practical utility; the first absolute success having been achieved by Mr. G. F. GÖRANSSON, of Gelfe, Sweden, from whom a highly interesting communication, detailing the result of his researches, appeared in another column. When the new theory was first propounded, experienced men were by no means unanimous in their opinions respecting its importance; and even those who admitted that the theory was capable of practical application expressed their fear that the consumption of iron during the conversion of the molten mass into steel would be so considerable as to counterbalance any advantage which might otherwise accrue from the process; it being apparent that, although Mr. BESSEMER proposed to abandon the use of fuel, properly so called, the extreme temperature which he obtained could not be produced without the combustion of some material to produce it; and it was unlikely that the impurities in the mass would be burned without at the same time consuming a portion of the iron; or that by merely blowing atmospheric air into the converting furnace it would be separated into its component gases. We have now, however, the assertion of a practical Swedish ironmaster, that "from the time the first pig-iron has run from the blast furnace until it is formed into cast-iron does not exceed twelve minutes,—the loss of weight, including the carbon and other impurities given off, varying from 12 to 15 per cent., and being about one-half of the waste incurred in the old system of making bar-iron in Sweden;" so that, by whatever means the heat in the converting furnace may be produced, it is evident not only that iron can be manufactured by Mr. BESSEMER'S method, but that immense advantage is to be gained by so manufacturing it.

The complete success which Mr. GÖRANSSON records was not obtained, as may be seen from his letter, without much perseverance and oft-repeated failures; yet his confidence in the correctness of the principle, coupled with his frequent partial successes, encouraged him, the result being that he "has surmounted all difficulties, and got the whole system under perfect control." In a country like Sweden, where fuel is scarce and ironstone so abundant that the sole difficulty is to procure the combustible to smelt it, the importance of the process cannot, as Mr. GÖRANSSON remarks, be over-rated; and we must not presume, because we have plenty of coal ourselves, that Mr. BESSEMER'S invention will be of less value in England, since we must recollect the advantages of the process are by no means confined to the mere question of fuel, the saving of time and labour being of equal consideration in calculating the cost of manufacturing cast-steel in this country. We congratulate both Mr. GÖRANSSON and Mr. BESSEMER upon the issue of their labours, and trust we shall, ere long, be in a position to announce an equal success in Great Britain.

A point of some importance to public companies—to such at least which may not be able to make satisfactory progress—has been decided by Mr. Commissioner FENBLANQUE, upon an application made to him for the winding-up of the CALCOTT HALL MINING COMPANY in the Court of Bankruptcy. It is this: that where a voluntary winding-up has been determined upon by a majority of shareholders, an appeal for the public winding-up cannot be entertained, unless under special circumstances. It appears that Mr. MOSTYN, the owner of the estate on which the company carried on their operations, petitioned the Court for an official and public winding-up; but as it was shown that the shareholders had already taken steps for a private settlement of their affairs, the Commissioner determined to adjourn the case until the wishes of the creditors were ascertained, which led to the necessary enquiry, and nine out of thirteen creditors were in favour of a voluntary and private winding-up, and represented 482*l.* out of the 816*l.*, the total liabilities of the undertaking. Mr. LUCAS, for the petitioner, contended that the resolution of a first public meeting ought not to stop all other proceedings; but Mr. LAXTON, on the other side, showed, by the 64th section of 19 and 20 Vict., cap. 47, that it is specially directed the voluntary winding-up shall take effect from the passing of the resolution, and consequently not requiring the confirmation of a second meeting, as urged by Mr. LUCAS. The Commissioner hereupon interposed, and explained that the Act does not say that the presentation of a petition between the first and second meetings shall stop all proceedings. "That is the question," contended Mr. LUCAS, "and a very important question for the shareholders of joint-stock companies. The Court is directed to have regard to the wishes of creditors, in deciding whether the winding-up shall be public or private; but it will surely inquire who those creditors are, and whether they have an interest in a private winding-up."

This, of course, was the point on which the Court had to give judgment, and Mr. Commissioner FENBLANQUE did not hesitate to settle the question in dispute by saying—"I am of opinion that the voluntary winding-up has been sufficiently carried by the majority of creditors, both in number and value. It then remains for me to consider whether I shall in any manner interfere with that resolution. I do not think that any sufficient cause has been made for my interfering, further than that, under the 12th section of 20 and 21 Vic., I shall order that half-yearly accounts be filed in this Court."

This, as already remarked, is an important decision. It constantly occurs, when companies discover that there is but little probability of a successful prosecution of their works, and determine to close their affairs amongst themselves, that captious creditors, or one or two litigious shareholders, at once desire to throw the matter into court, which only leads to great delay, and still more certain waste of the funds of the company. It is well, therefore, as now shown, that where shareholders have resolved to close the business of the company, petitions for public winding-up will not be considered by the Court of Bankruptcy, unless fraud or collusion be proved.

**LIABILITY OF DIRECTORS.**—It is understood that it will be attempted, by a legal technicality, to endeavour to overthrow the very just and satisfactory verdict given in the case of "Scott v. Dixon," at the recent Liverpool Assizes. It is intended to appeal on the ground that between persons induced to purchase shares on the faith of the published reports and the directors of these undertakings there exists what is technically termed no privity of contract, so as to render these latter responsible for any fraudulent representations as to the condition of their respective companies. It is sincerely to be hoped that such an appeal will be, to the fullest extent, unsuccessful, as to reverse the decision given at Liverpool would shake public confidence in joint-stock companies to a greater degree than can well be imagined. During the last few sessions an evident desire has been evinced to improve the position of shareholders, by rendering them more secure against the malpractices of directors; and, as a proof, we might refer to the passing of the Joint-Stock Companies Acts of 1856 and 1857, and the Fraudulent Trustees Act, each of which give the shareholders in public companies greater privileges than they had previously enjoyed. But if directors are to be permitted still to issue delusive statements, what advantage can the poor shareholder hope for from the several legislative enactments? Or of what effect is the 20 and 21 Vic., cap. 54, sect. 8, which provides that "If any director, manager, or public officer of any body corporate or public company, shall make, circulate, or publish, or concur in making, circulating, or publishing, any written statement or account which he shall know to be false in any material particular, with intent to deceive or defraud any member, shareholder, or creditor of such body corporate or public company, or with intent to induce any person to become a shareholder or partner therein, or to intrust or advance any money or property to such body corporate or public company, or to enter

into any security for the benefit thereof, he shall be guilty of a misdemeanor;" and liable, according to clause 10 of the same Act, to be sentenced to three years' penal servitude, or to two years' imprisonment, with or without hard labour, or to pay a fine "as the Court shall award?" Now, the misdemeanor being fully proved against Mr. Dixon, and his having escaped with the payment of a fine, instead of being required to undergo the more ignominious sentence of penal servitude, or imprisonment with hard labour, it would have been thought that he would have preferred letting the matter drop to having it revived, in the hope of upsetting a just verdict, by availing of a legal technicality. Referring to the grounds upon which the appeal is to be based, a correspondent very justly remarks that, "Should so absurd a doctrine be found to prevail, it will be a disgrace to English jurisprudence; nothing can be conceived more likely to bring the common law into contempt than the defeat of a most righteous judgment by such barbarous jargon. Just conceive such a thing! Directors of a public company, having in their sole possession the books and information essential to the guidance of purchasers for investment in the concerns over which they preside, and of which position they avail themselves, by false statements, to influence the public market, and thus to spread ruin over the whole country, are at liberty to do so, on the ground that such false statements are not made to any individual in particular, nor even to the public in general, but only to existing shareholders; and that, therefore, no liability attaches to them for the monstrous frauds by which a purchaser has been misled into investing and becoming a partner with swindlers." For ourselves, we believe the principle of association capable of rendering material assistance in the development of our commercial industry, and therefore trust that we may never have to record a decision, either in law or in equity, which would tend to create a felling in the mind of the public that shareholders have no protection against careless or fraudulent directors.

THE MINING AND INDUSTRIAL INTERESTS OF CORNWALL.

[FROM OUR CORRESPONDENT IN WEST CORNWALL.]

OCT. 21.—The standard advanced last week, and made 2*s.* per ton difference in the price of ore paid to the miners. At the same time the price of ore copper advanced to 85*l.* 8*s.* per ton, and it is difficult to conceive, looking at the experience of many years past, that this price for ore copper will be continued, unless the smelters intend to raise the price of fine copper. The price of cake copper has been for some weeks 98*l.* per ton, and between this and last week's price of ore copper there is only 12*l.* 12*s.* per ton difference; whereas, if we look at a year's sales, we find that the average difference between ore copper and cake copper is between 22*l.* and 23*l.* per ton. That has been the average difference for the last two or three years, and the smelters are not likely now to reduce the difference to 12*l.* 12*s.* without very shortly raising the price of fine copper to make the usual difference between the buying and the selling price of copper. It is true that the present abundance of money gives facilities for holding stocks, but still the smelters are not the kind of people who are generally disposed to advance prices to the miners while they sell to consumers at a low rate. One of two things will, therefore, happen—either the standard will be again reduced, or the price of copper will be advanced. The latter is the most likely, seeing that the home trade is decidedly improving, and the foreign trade is a little better than it has been.

There is much more business doing in mine shares than there has been for some time past, both in dividend and progressive mines, and some of the new mines also find favour with the public. Dolcoath shares are very firm, consequent on the excellent condition and prospects of the mine. The deepest level (the 254), on the north part of the main lode, is worth 80*l.* per fm. for tin, and the winze sinking below the 242 is worth 75*l.* per fm.; the winze will be communicated to the 254 in about three months, and some very productive ore ground will then be available. The deepest levels of the mine are the best; the eastern and western ends of the 242 are together worth 135*l.* per fm.; whilst on the new south lode there is every probability of a good copper mine being opened up. The various ends in the mine are altogether worth for tin 285*l.* per fm.; two winzes sinking are worth 115*l.* per fm.; and Dunkin's shaft is worth 50*l.* per fm. The tin deposit in this old mine, underneath the copper deposit formerly worked away, is certainly of an extraordinary character; and it is probable that some other mines in the county, if worked to greater depth, would develop a tin deposit under the copper one, as is the case with Dolcoath. Cook's Kitchen is looking very well, and is likely to make a very productive mine.

At Condurrow meeting the mine was 76*l.* in debt. In the 140 east there is a large and promising lode. The ends do not appear to be very good at present, but cross-cuts are driving, which it is confidently expected will open ore ground. The tribute pitcher continues to yield considerable quantities of ore, and it is expected the returns will increase during the winter. West Seton is looking well in the tribute pitches, and the mine appears to be improving. There are five very productive stopes in the bottom of the 90 and back of the 100, worth altogether 55 tons, or about 400*l.* per fm. The 110 west is worth 70*l.* per fm.; and the 100 west produces 8 tons per fm. The eastern levels are not in ore, with the exception of the 90, east of Harvey's shaft, which yields 3 tons per fm. The ends of the mine are producing 24½ tons of copper ore per fm.; and Harvey's shaft is yielding 8 tons per fm. for the length of the shaft. The new shaft and engine-house are, for the present, adding somewhat to the expenses of the mine. Great Wheal Busy is looking favourable at several points, and will, there is little doubt, make a good mine when sunk deeper, and levels extended. This and other old mines show, however, that the "old men," as they are termed, were not generally so very foolish as to leave a rich mine behind them. They took away all they could that was worth taking within their reach; so that if others came after them they find they have generally pretty much work to do, in opening up a new mine, before they can arrive at very productive ground. The tales that are told about the riches in the bottoms of abandoned mines generally turn out to be deceptive. East Basset shares have an advancing tendency. North Frances is looking much more favourable. West Frances shares are low. East Carn Brea is reported as yielding 2 tons per fm. at the shaft, and the mine is looking exceedingly promising for so shallow a level. South Seton continues to have a very favourable looking lode at the shaft. Wheal Trundle, another of the young mines, has excellent indications, but has not come into ore so soon as was expected by some of the more sanguine of the adventurers. South Tolgus has a lode worth from 20*l.* to 30*l.* per fm. in the 110 west, and there are some very good stopes in the mine; the shares are from 70*l.* to 75*l.* Grambler shares are about 135*l.* Providence shares have advanced. Wheal Margaret, from 55*l.* to 60*l.* Old Tolgus United is looking favourable, and has every appearance of rewarding the adventurers on further development. Tresavean Mine going to work is an important event in the Gwennap district, and there appears to be every probability of success under good management.

Another effort has been commenced to establish means of mining education in Cornwall. At the recent meeting of the Royal Cornwall Polytechnic Society three schemes were proposed, one of these on behalf of the Council of the Royal Institution of Cornwall at Truro. The Council have proceeded to set their scheme in action by instituting a course of instruction in chemistry. Mr. Pearce, of Dolcoath Mine, was an assistant in the chemical department of the late Mining School at Truro, and distinguished himself in branches of study bearing upon mining. He has now been appointed by the Royal Institution teacher of an evening school at Pool, in a populous mining district, where he will give instruction in the elements of mineralogy, and chemistry at the low rate of 1*s.* per week. This instruction will be available to many young miners who may desire improvement, and look forward to the obtaining of agents' situations in after life. The plan is a good one, so far as it goes, and probably it may be followed by something more complete, in the establishment of district schools. It also appears that another Mining School is to be opened at Truro in January next, when a full course of instruction in mineralogy and metallurgic chemistry will be commenced. This class will occupy three months, and will be conducted by Mr. Pearce, who will then give up his teaching at Pool. The advantage to be gained at Truro is, that the laboratory at the Royal Institution is there available for giving instructions for operating on Cornish ores, &c. The disadvantage, however, of the school at Truro is, that the expense of board and lodging places it beyond the reach of the more intelligent of the working miners who may desire instruction. Mining education in Cornwall, to be popular and extensively useful, must be carried on in the heart of the mining districts.

The Cornish fisheries have taken a turn for the better. Since the recent gales the fish have come in in considerable quantities on the north coast. At St. Ives 4050 hogheads were enclosed in the seines in one day.

There have also been good catches in Mount's Bay, off the Lizard, and at other points of the coast. An abundance of pilchards is a considerable boon for the working population.

THE IRON AND METAL TRADES OF STAFFORDSHIRE.

[FROM OUR CORRESPONDENT AT WOLVERHAMPTON.]

OCT. 21.—The week after the quarterly meetings is not usually characterised by any large transactions in the Iron Trade, as most persons have entered into contracts or made purchases. All that can be said is, that there is more iron being made in the district, that it appears that we shall go on rather better this quarter than last, the canals and railways carry rather more goods, pigs are firmer and rather higher, and nothing is wanting but American orders to make the trade good. For these manufacturers must wait until spring, when it is to be hoped they will come with the thawing of the canals and rivers in that country.

It is most gratifying to be able to state that the colliers' strike is over, with the exception of a few cases of isolated perseverance. Last week most of the pits west of Dudley were in full work at the reduced rates, and this week all appears to be so. The thin miners at Coseley also generally went in at the close of last week, and there are now more applicants for work than there is room for men. In the original seat of the strike, Oldbury and West Bromwich, the men are generally at work, and it is felt by all parties that this unhappy contest is now over. Such a result was from the first anticipated, and however heavy was the reduction, it certainly appeared a most hopeless struggle, considering the position and prospects of the iron trade. Now that the strike is over it may fairly be anticipated that the price of coal will undergo a reduction, which is very necessary in relation to the manufacture of pig-iron.

At the Staffordshire Quarter Sessions, on Monday last, the strike was the subject of conversation amongst the magistrates, and the Lord Lieutenant, Lord Hatherton, amongst other remarks, observed that—

It was proper to give some little credit to the colliers themselves. He believed that the late strike was the only one of any length with which he, in his 50 years' experience, had been familiar, in which no glaring breaches of the peace had taken place, and no violent outrages had been committed. The improvement was universally attributed to the intelligence of the men. The greater number of them were now readers, and although some of the newspapers which fell into their hands were not such as to meet with the entire approval of those he was addressing, yet the intelligence of the men was increased by perusing them, and they gained that good sense which prevented them from resorting to violent outrages.

All must acknowledge the truth of these remarks, so far as they relate to the remarkable proof this struggle has afforded of a greater degree of self-control amongst this class of workmen. No doubt the diffusion of information has done much to produce this change for the better, but I should attribute it in a much greater extent to those less tangible, but more potent, influences which affect the moral rather than the intellectual nature. Within the last few years the higher classes of society have to an increasing extent risen to a perception of the duties they owe to those whom they employ. Churches and schools have sprung up with marvellous rapidity throughout this and almost every manufacturing district in the country; chaplains descend several of the collieries, visit the bedsides of the sick, whilst ladies, aiming at nobler objects than display in equipages and dress, give a large portion of their time to works of kindness and charity, eminently calculated to heal the sores which a hard, repulsive, and indifferent bearing towards the workmen in past times has occasioned. But, above all, it has been through the efforts made on behalf of the young that the hearts of men in the lower walks of life have been reached. The children of the miner have been cared for, their minds stored with interesting knowledge, which they, doubtless, proudly detail at home; they sing in their humble homes sweet melodies, taught them, perhaps, by the wife or daughter of the rich master; and on festive days, when they have gone a trip by rail to some scene of sylvan beauty, some venerable pile of antiquity, or to the tasteful grounds of the "master," their overflowing joy cannot have failed to carry gladness to many a cottage, and to make the heart of many a man, otherwise disposed to Chartism and levelling doctrines, feel that, after all, those above him are not indifferent to the happiness and well-being of the offspring of the collier or the labourer. The spread of intelligence is by all means to be promoted, but it alone would prove insufficient to soften that prejudice and mistrust with which the neglect of the poorer classes in times past has embittered the hearts of the operative classes, and which has rendered them readily accessible to political and social doctrines, which seek to destroy the pre-eminence of those classes who have too little improved the opportunities, and fulfilled the responsibilities, which their position involved. Good deeds, springing from an enlarged Christian charity, cannot fail to grow into a rich harvest of social blessings, both to those who sow and those who reap.

The admirable manner in which Mr. Lionel Brough has fulfilled his duties as Inspector of Coal Mines in this district, has more than once been alluded to. Unlike some of those appointed to carry out the provisions of the Act, Mr. Brough has acted upon the principle that the co-operation of those engaged in the management of mining was necessary in order to effect any improvements which would result in a diminution in the sad list of accidents which attend these operations. Whilst, therefore, no one could have been more active or zealous in pointing out and removing sources of danger, he has always tried persuasion, expostulation, and advice, before he appealed to the arm of the law. The mining engineers and ground bailiffs, as the viewers are called in this locality, finding that he united practical experience with scientific attainments; that he could appreciate, and was ready to make allowance, for difficulties; that he was not wedded to pet theories or special modes of operations, which the peculiarities of the strata in the district might render inapplicable, have assisted all his efforts far more than any summary powers which an Act of Parliament could confer, or the most compliant administrators of the law apply. A most gratifying and honourable proof of this good feeling was afforded when the mining engineers and bailiffs from all parts of the district invited Mr. Brough to a most elegant dinner, at the Swan Hotel in this town, on Tuesday evening, when Mr. James Bromley, as the senior of this intelligent body of men, presented Mr. Brough with a silver claret jug and drinking cup, elegantly chased, and bearing the following inscription:—

"Presented by the Miners of South Staffordshire to LIONEL BROUGH, Esq., Government Mine Inspector, on his removal from this district, in appreciation of his great usefulness, energy, and ability. October 19th, 1858."

Mr. Kettle, a barrister, whose frequent connection with mining causes has familiarised him with mining surveys, and the peculiarities of mining operations in this district, arising from the great dislocation of the strata, presided, and in proposing Mr. Brough's health, warmly eulogised the manner in which he had fulfilled his duties, rather as a volunteer missionary going about to save human life, than a Government Inspector standing upon the authority which he derived from his appointment under the provisions of a special statute. Mr. Brough replied in the following terms:—

I have always experienced difficulty in verbally expressing myself, but the present distinguished honour takes away even the very limited faculty of speaking that I possess, and it becomes now almost painful to me, as I am conscious of not meriting the regard that is manifested towards me. If I have not in times past deserved so well of my neighbours and friends, the fact of my being here this night will be a lesson to me for the future; showing so clearly as it does that there is no person, however humble or mediocre, but who may meet with notice and kindness if he endeavour honestly and faithfully to discharge the duties assigned to him. I do not mean the mere official duty of the day, but, in addition, all those acts of usefulness and kindness to our fellow-creatures which constitute the main requirements of a man living in a Christian land. When I reflect on all that I ought to have done since I commenced the battle of life, I become conscious of many lapses, and of many neglects to my fellow-men; but I repeat, that I have this night received so rich a lesson, that it will ever make me more mindful of what I owe to all my friends, and to mankind in general. All who are present know something of the difficult and delicate nature of my employment in Staffordshire; but perhaps few are aware how much it has been softened, and to me rendered easy, by the urbanity and good will of the coal and ironmasters, by the assiduous and kind attention of the viewers and mine agents, and by the docility and good sense of the workmen. I cannot help here regretting that recent events have somewhat clouded the good understanding which in this country has generally prevailed between employers and employed. It will be necessary to remark, that during my three years residence here my constant efforts have been to promote a reciprocal feeling between the masters and the men. My endeavour has always been to realise kindness and protection on the one part, and affection and obedience on the other. I am happy to believe that these good feelings will soon be restored by the men cheerfully returning to their work, and that hereafter the desired reciprocity will exist in a still more close and kindly degree. Mr. Chairman and gentlemen, it is natural that I should undergo a sorrowful feeling at leaving this country. You may well believe that these regrets are strongly entertained by me. I need not say that I shall experience painful emotion the day I finally depart from Staffordshire. But these sentiments will be alleviated by the consciousness that I leave behind me a worthy successor. He is here present; and I feel that with him all my respected friends will be in good hands. Mr. Longridge will endeavour to do justice to all parties, even as I have striven to do; and I feel certain that he will perform it in an able and satisfactory manner. At this festive board I see many kind friends, and I only hope they will not give up because I am going away. I assure you all, gentlemen, that I do not give up Staffordshire and Worcestershire on that account, and I hope often to revisit scenes and localities that I hold in most warm regard. It has been my privilege here to acquire valuable friends, and I should be ungratefully to neglect to occasionally return to see them, and maintain intact their good opinion. Life is uncertain and all too short; therefore friendships, once formed, should



never be abandoned. It is to be hoped that we may still retain that mutual desire to work together for the good of our fellow-men that has so long subsisted between us. Even though we may be parted, we may still all continue our efforts to that desirable and useful end. I must here be careful not to omit to pay a passing tribute to an elevated body of gentlemen in the two counties; to their patience and sense of justice I owe much indeed. The magistrates of Staffordshire and Worcestershire are entitled to my grateful thanks for the consideration they have always exhibited towards me. To them I am largely indebted for the complete and thorough, though kindly, working out of that Act of Parliament which happily for me fixed my labours in this great division of coal mines. I have now to say how grateful I feel to you all for the expression of good will and kindness which has been manifested towards me; and what a lively appreciation I entertain of the tasteful and splendid testimonial which you have this night presented me with. I can only repeat, that I could earnestly wish and desire that my merits were more commensurate with so high a reward. In offering you my sincere thanks, I desire also to express my warmest hopes and wishes for continued good health and increasing prosperity to you all.

His reception was most cordial and enthusiastic; and it must be a proud reflection that he has, on his retirement from this locality, received so marked a demonstration of respect from men who, beyond all others, are able to appreciate his ability, and the manner in which he has performed his public duties.

#### REPORT FROM NORTHUMBERLAND AND DURHAM.

[FROM OUR CORRESPONDENT.]

OCT. 21.—The exports of coal from the leading north-eastern ports during September show an increase, when compared with the corresponding month in last year. The increase is certainly not great, yet the fact is encouraging. The demand for manufactures on the Tyne is somewhat improved also, so that we may hope that a general improvement will take place shortly in the trade of the district, and that the demand for coal and iron will again become brisk. The progress made in the adjustment of the affairs of the District Bank has, no doubt, assisted in causing an improved feeling—dividends to a considerable amount having been paid to a part of the creditors of that unfortunate concern lately.

An explosion occurred a few days ago at the Seghill Colliery, by which a man of the name of Redhead was so much injured that he has since died. This is a very peculiar case, and one which shows the great use of safety-lamps in a very clear manner. It is well known that the Seghill Colliery is a very extensive one, having been worked many years on the main seam, which produces steam-coal of the best quality, so that the workings in that seam are very extensive. But, lately the working of another seam has been commenced, called the "yard seam," and it was here that the accident occurred that we have mentioned. The workmen employed used only candles, and when they commenced work the seam was perfectly free of gas, and therefore safe, but during the time of working the overman discovered that the air current was gradually becoming impure, owing to an emission of gas; this was owing to a change of wind and fall of the barometer, the gas not being emitted from a blower, but from fissures previously existing in the strata. He, therefore, proceeded to get the men and boys out of the pit as quickly as possible, and he had succeeded in getting the bulk of them out when the explosion occurred, which was an extremely fortunate circumstance, as, if he had not done so, it is very probable that a number of lives would have been lost, as the explosion was very violent at a certain point. This circumstance clearly shows that a powerful ventilation will be required to work this seam in a safe manner. The colliery, as we have remarked, is extensive, and there are two shafts—the downcast pit being 12½ ft. and the upcast 8½ ft. diameter: they are both coal-drawing shafts.

We certainly think that the remarks lately made in the Journal respecting the Government Inspectors of Mines very opportune. We do think they ought to inspect as many collieries as possible, and prevent, if possible, such a state of things arising as to render accidents probable. We really cannot understand why they were appointed if they do not do so. They are men of ability, and are well paid, and their presence as often as possible at our extensive collieries cannot fail to produce beneficial effects. We cannot state how often they do inspect collieries in this district, or how many in one week, but we think that it would greatly improve the appearance of their reports if they were to give an account of the number of collieries visited by them. It is vain to imagine that their presence is not required. We have no doubt that many collieries can be much improved as respects ventilation. We were very much surprised lately on hearing that an extensive colliery here, worth considerably more than 100,000, was ventilated by a current of air of about 6000 cubic feet per minute. It cannot be supposed that the owners of this colliery would have allowed such a state of things to exist if their attention had been called to the subject by the Government Inspector, as it was clearly as much opposed to their interests as to that of the workmen employed. Prevention is (as has been often remarked) better than cure. We will, we fear, get very little benefit from the Inspectors if they delay their inspection until after an accident has occurred. We do not think that the present Inspectors are too highly paid, but we think that men of a lower class, with considerably less salaries, would be more useful than they are likely to prove, as they would work much harder, and inspect more collieries in a given time.

A meeting of coal miners has been held near Bishop's Auckland, at which about 8000 men were present; Mr. William Liddell in the chair. He stated at the meeting that he had been discharged from his employment at the Stanley Colliery on account of his having taken the chair at the meeting held lately at the Shadow's Hill, although he had, he stated, never lost a day's work the last two years, but he is now free, and a missionary. For what purpose, we would ask? for the purpose of sowing dissension between the workmen and their masters? for the purpose of propagating the principles of the new Union? We really think it is much to be deplored that this man should have been discharged simply because he took an active part at a public meeting. If he wishes to be a sort of martyr, and gain a living by agitating, this is playing into his hands; if he really is a good workman, and anxious to be employed, it does not appear to be judicious to throw him on the idle list. The coalowners, as a body, have nothing to fear from public meetings; if the men choose to meet, and have a little talk, that is a privilege all Englishmen claim and enjoy. It cannot be supposed that they will be intimidated, or prevented from pursuing any course they may determine upon by such petty measures as those; and we may remark, that we have much confidence in the good sense and intelligence of the great body of the workmen in this district, and that they will not easily be persuaded to adopt any measures injurious to themselves and their employers.

The *Waver*, twin-ship to the great iron steamer the *Hudson*, is to be launched to-day from the Messrs. Palmer's works, at Jarrow, so that this enterprising firm will reap another laurel, and materially add to the fame of the Tyne for iron shipbuilding.

#### REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

[FROM OUR CORRESPONDENT IN SOUTH WALES.]

OCT. 21.—We are happy to be able to confirm this week our recent reports of an improvement in the trade of the district. More activity exists at present than for some weeks past, many of the concerns in the hills being now well supplied with orders. At the Taff Vale Iron-Works a Russian order to some extent is now in hand, and keeps all departments in brisk operation. The Ebbw Vale, Tredegar, Rhymney, Blaenavon, and other works are also going on prosperously, both present circumstances and future prospects being decidedly encouraging. The continental demand is becoming more active, and from France and Russia favourable accounts continue to be received. Home dealers are also coming forward more freely, but from America very little support is at present derived. The result of the change has been to encourage fresh mining undertakings, and, as detailed below, several fresh veins of coal are about to be worked. It is very satisfactory to find proprietors thus recovering confidence, and we have no doubt their exertions will be rewarded with a large measure of success. Of course, no alteration has at present been made in wages, nor can any be expected before the close of the year, at the earliest.

A return has just been issued of the exports of coal and iron to foreign parts from Bristol. The quantity for the month of September was—coal 285 tons, and iron 5432 tons. Compared with the previous month these returns show a falling off in the exports of coal of 855 tons, and an increase in those of iron of 910 tons. The greater part of the coal was shipped for Demerara, and the larger portion of the iron went to New York. For the quarter ending September the exports of coal were 2711 tons, and of iron 12,438 tons, in both an increase being shown over the previous quarter.

Considerable dissatisfaction is felt here with the recent official report regarding the respective merits of Welsh and North Country coal. It is considered that a fair trial has not been made of the former, and that an undue preference for the latter has been exhibited by the commissioners from the first. Had the subject been fairly enquired into by competent and impartial men, it is alleged that the whole tenor of the present report

would have been changed. The experience of captains who have used both descriptions of coal is appealed to in support of the statement that the Welsh steam-coal is far superior to that produced in any other part of the country, and strong testimony is undoubtedly adduced on this side. The complaints are general, and it is reported that the principal coal owners will, before long, adopt measures which will bring the question to a just and fair solution.

It will be remembered that, a short time ago, a serious strike and disturbance took place among the Bedminster colliers, near Bristol. A number of them assaulted one of the men who refused to turn out, and for this they were duly punished. This week, Thomas Gray, a collier, was brought before the magistrates charged with assaulting James Smith. The complainant stated that Gray struck him in the face with his fist, but evidence was produced to show that Gray was innocent of the charge. The magistrates considered it was a case for a jury to decide, and accordingly committed the prisoner for trial, refusing to take bail.

Some rather heavy floods have occurred lately in the Rhymney and neighbouring valleys, and in one instance some damage was done to a colliery, although the works were not long delayed. The rains in the early part of the present week occasioned considerable inconvenience, but the change in the weather will be the means of preventing any serious injury.

Last week a man named John Davies, a workman at Penrhyn Quarry, near Abergystwyth, was found dead under a mass of earth, which appeared to have fallen over him while he was at work. An inquest was held on the body, and a verdict of "Accidental Death" returned. At the Cwmeryn Mine a fatal accident has also occurred. A miner, named Thomas Mason, fell while descending a shaft, and expired very soon afterwards. No blame was attached to the authorities of the colliery.

Accounts from the Ely Valley state that mining enterprise was never shown to a greater extent than at the present time. The mineral under the Cobena estate has been let to Mr. W. Jones, formerly of Dowlais, and the property will, doubtless, be worked with the vigour and judgment usually shown by that gentleman. On the estate are valuable seams of coal in three groups, beds of iron ore, and superior veins of fire-clay. Sinking will be commenced in a few days, every preliminary preparation having been made.

A fine vein of coal, 4 ft. in thickness, is reported to have been discovered on the Gellyrhaidd property, and coal has also been won on Gellyr. In the Rhondda and Taff Valleys more activity in trade exists, and one of the large coal proprietors has decided on sinking down to the steam-coal measures in a shaft now working the No. 3 bituminous. In a very short time, the Messrs. Fowler will commence working the No. 1 seam on Graighanna, belonging to Messrs. Rickard. All this shows that a general improvement in business has taken place, and there is every reason for anticipating that in the course of a few months the iron trade at least of the district will be more extensive than ever it was.

The following observations, furnished by a correspondent, are deserving of attention, although the evil complained of might be remedied in a manner different to that suggested:—

"An overman or fireman ought to be above intimidation from master or agent; in fact, it is not to be doubted that scores of lives would be annually saved if overman and fireman were paid servants of the Crown, and not of the coalmasters. If Government insisted that the appointment of such men should be in their hands, and that they should pass an examination prior to their appointment, proving their qualifications for such a responsible post, it is needless to say, for reasons supports the idea, that many accidents might be averted, or, if not averted, the consequences considerably modified. We know many instances where overmen and firemen cannot write their names, nor read a single line, from which we infer they have no very extensive knowledge of hydrogen or carbon, or of any of the refractory elements they have to contend with, and by their skill to subdue. It is impossible that such men can give correct and faithful reports of the quantity and extent of the gaseous elements in the different parts of the workings. Their knowledge of the all-important science of ventilation must also be very artificial and limited, and while on such important facts in mining they remain uninformed, perfect safety of life and property will never be insured."

William Parry, a haulier, in the service of the Rhymney Iron Company, was engaged in removing the furnace cinders last Friday at the works. By some accident he became entangled in the wheels of the tram and fell, so that they passed over his legs, breaking one, and injuring the poor fellow in a dreadful manner. It was thought he would recover, but, after suffering great anguish, he died on Tuesday.

No additional light has yet been thrown on the late dreadful accident at the Primrose Colliery, near Swansea. To whom the blame of the occurrence can be ascribed, or whether the authorities are at all in fault, cannot at present be known; but Mr. Evans, Government Inspector, is making diligent investigation, and it is to be hoped he will sift the affair to the bottom. No more deaths have taken place, and fortunately the majority of the poor fellows killed were unmarried. The inquest will take place very shortly, and we shall present the most interesting points in evidence.

**MANUFACTURE OF IRON AND STEEL.**—Some few months since much interest was felt with respect to a new process for manufacturing iron and steel, introduced by Mr. Charles Sanderson, of Sheffield, and which was referred to in an elaborate paper read before the Society of Arts. We are now enabled to give the details of the invention, which was provisionally specified, although it has been allowed to become public property, from notice to proceed not having been given. It relates, firstly, to the adaptation for the purpose of obtaining malleable iron of the process patented by him on Nov. 24, 1855, for the manufacture of iron; and, secondly, to the employment in the manufacture of steel of refined iron prepared according to the said process. This process consisted in refining pig-iron, or fluid iron, as it came from the blast-furnace, by adding thereto (while on the bed of the reverberatory furnace) a chemical re-agent, which by its decomposition when acted upon by the heat, would evolve elements capable of combining with the carbon contained in the fluid iron, and reacting upon the silicon, aluminium, sulphur, phosphorus, arsenic, or any other impurity contained in the iron. The refined metal was then run into moulds, and subsequently by the ordinary mode of puddling further manufactured into malleable iron. The object of the present invention is the production of malleable iron directly from the puddling furnace or charcoal refinery, without the intervention of the process of refining the crude iron prior to its treatment in the puddling furnace as above described. He makes use of this process as an auxiliary means of attaining the desired end; and, therefore, melts pig-iron in the puddling furnace, as it is now melted in the operation of puddling pig-iron; or introduces the usual quantity of crude iron in a fluid state—say 4 to 5 cwt., as may be most convenient; then adds to such fluid iron any suitable chemical re-agent, as those described in the before-mentioned patent, enlarging the proportion so as to effect a more rapid decarbonisation of the iron, and next proceeds to puddle up the iron in the ordinary way; or he melts crude pig-iron in a charcoal refinery, or introduces fluid iron into it, and at once adds the re-agent to such iron in quantity sufficient to decarbonise the iron, and then proceeds to work the iron in the charcoal refinery in the ordinary way. In these operations he does not run out the metal in a refined state from the furnace, but produces malleable iron directly and at one operation from the furnace in which the crude pig or fluid iron is acted upon. In the manufacture of cast-steel the iron which he uses he decarbonises by means of the re-agent named in the patent before referred to, so that it shall contain a minimum per centage and definite quantity of carbon; he then melts the metal so decarbonised in a crucible, alone or with the addition of malleable iron, or iron converted into steel, or iron ore which has by any process been decarbonised for the purpose of obtaining cast-steel, the quality may be determined according to the purity of the materials used.

**WENTWORTH GOLD MINES, NEW SOUTH WALES.**—A correspondent at Bathurst sends us a long account of the ceremonies attending the starting of the engine at the Wentworth Gold Mines. Everything appears to be satisfactorily progressing under the careful superintendence of Mr. Edward Combes: a 30-horse power engine, from the Colonial Gold Company's works at Tambora, and some of the Louisa Creek machinery, has been erected, the starting of which was duly celebrated; great praise was given to Mr. Combes, Mr. W. Johns (mining captain), and E. Clarke, engineer. Mr. W. Johnston, Gold Commissioner; Mr. Busby, manager of the Union Bank; Messrs. N. Lane, T. J. Lane, G. Colquhoun, A. Kerr, &c., were present.

**THE MAYOR OF MELBOURNE.**—Several of our Australian correspondents ask whether there is any foundation for the report that Mr. John Thomas Smith, the Mayor of Melbourne, is to receive the honour of knighthood? They express their hope that it is altogether a fallacious rumour, inasmuch as they argue that so many men of high political and commercial position in the colony, who have visited England, or are now here, have been allowed to return, or to remain, without having had any mark of royal favour bestowed on them, and that the present is neither a favourable nor satisfactory opportunity to depart from the course hitherto adopted. They instance, amongst many others, that Mr. William Nicholson, the late Premier, a most popular man, and who has been very instrumental in promoting the prosperity of the colony of Victoria, has lately gone back from this country in the same social position in which he came here. In fact, it is implied that the visit of the Mayor of Melbourne to London was arranged solely in the expectation of obtaining knighthood, and that the object of the journey does not meet with the approval of the colonists generally, nor indeed of the body of the inhabitants of Melbourne. It is pertinently asked whether there has been any communication from the Governor of Victoria to the Colonial Office, to recommend such a mark of royal consideration in favour of the present Mayor of Melbourne?

#### THE MINERAL WEALTH OF THE UNITED KINGDOM.

**ZINC.**—The following is the summary of Zinc produce for 1857:—

Cornwall	.....Tons	1674 12 3	.....£ 4,426 18 4
Devonshire	.....	775 7 2	.....2,478 8 2
Cardiganshire	.....	1371 7 3	.....4,451 13 2
Isle of Man	.....	2916 14 0	.....10,771 13 0
Cumberland	.....	491 14 0	.....697 1 4
North Wales	.....	2089 18 0	.....7,887 8 10
Total	.....	9280 11 0	.....40,082 11 11

**FIG-IRON.**—Total produce in Great Britain in 1857:—

Northumberland	.....Tons	62,387
Durham	.....	284,268
Yorkshire	.....	298,825
Lancashire	.....	1,370
Cumberland	.....	30,514
Derbyshire	.....	112,369
Shropshire	.....	117,141
North Staffordshire	.....	134,067
South Staffordshire and Worcestershire	.....	237,255
Northamptonshire	.....	11,500
Gloucestershire	.....	29,800
Somersetshire	.....	29,800
North Wales	.....	37,940
South Wales, anthracite districts	.....	63,440
Ditto bituminous districts	.....	907,287
Scotland	.....	918,000
Ireland	.....	1,000
Total produce of Great Britain and Ireland	.....	3,630,417

**COAL.**—Produce of the United Kingdom for 1857:—

Durham and Northumberland	.....Tons	15,820,325
Cumberland	.....	942,018
Yorkshire	.....	8,875,440
Derbyshire and Nottinghamshire	.....	3,687,442
Warwickshire	.....	698,000
Leicestershire	.....	638,749
Staffordshire and Worcestershire	.....	7,164,028
Lancashire	.....	8,265,200
Cheshire	.....	750,300
Shropshire	.....	750,000
Gloucestershire, Somersetshire, and Devonshire	.....	1,225,003
North Wales	.....	1,046,500
South Wales	.....	7,132,304
Scotland	.....	8,311,475
Ireland	.....	120,630
Total produce of the United Kingdom in 1857	.....	65,391,707

**SALT.**—The total produce of the United Kingdom:—

The quantities of white salt carried on the River Weaver from April 5, 1857, to April 5, 1858, was:—

Ditto of rock salt	.....Tons	647
Carried by railway from the districts of Winsford and Northwich, estimated	.....	65
Worcestershire—Stoke and Droitwich	.....	928
Ireland—Dunmore, near Carrickfergus (Belmont Mining Company) shipped	.....	196
Ditto used for manufacturing purposes	.....	52
White salt manufactured	.....	48
Total produce of the United Kingdom	.....	1,462

**ROTTEN STONE.**—

**SOUTH WALES.**—Cardiganshire, Breconshire .....Tons 20  
**DERBYSHIRE** ..... 1045  
**ISLE OF MAN** ..... 1009

**BARYTES.**—

Alston Moor	.....Carbonate	.....Tons	135
Northumberland—Fallowfield	.....Ditto	.....	1045
Shropshire	.....Sulphate, 1½ per ton, fit for grinding	.....	1009
Derbyshire	.....Sulphate	.....	8000
Lancashire and Skipton	.....Ditto	.....	1900
Ranby, Ireland	.....Ditto	.....	790
Kirkcubright	.....Ditto	.....	70
Isle of Arran	.....Ditto	.....	569

\* This is manufactured at Liverpool, Wigan, and Welshpool.

**OCHRE AND UMBER.**—

**CORNWALL.**—Shipped from Truro .....Tons 208  
Hullion, Indian Queen's umber ..... 28  
**DEVONSHIRE.**—Newton Abbot ..... 200

**RADDLE.**—An oxide of iron. Near Rotherham; is found a very beautiful variety of this oxide of iron, which is much used in polishing lenses. The quantity raised does not exceed 5 tons per annum. In the western counties it is used for marking sheep.

[To be concluded in next week's Mining Journal.]

#### CORNISH MINE PHOTOGRAPHS—SECOND SERIES.—No. V.

COOK'S KITCHEN MINE, ILLOGAN, CORNWALL.

This ancient mine is probably one of the most remarkable instances of the continuity of Cornish mines if perseveringly wrought, having been in constant work for 100 years. In its earlier days it was celebrated for the production of tin ores. It is also said to be the first place at which copper ore was appreciated; at that time the adjoining mine was called Bullen's Garden (now Dolcoath). Documents still on the mine date as far back as 1766; they are highly valuable, and exceedingly interesting. About 14 years since, by an unaccountable act of vandalism, nearly half a ton of these memorials were burnt by the then agents of the mine.

The old books preserved throw great light on the circumstances and mode of management at that time practised. From a notice in one of their pages we find the mine was worked by a "rag and chain pump," instead of the ponderous and costly machinery now used. The record says:—"15 August, 1766: Borad of Capt. Haten Donken a ragged head with all hooks, and 34 foot of chain."—"2 Sept., 1766: Borad of Penhallack (now Tincroft) ones 14 lbs. rope."—"Do. do., 15 lbs. of rope." Though the orthography is so very imperfect, yet the accounts appear to be clearly and regularly kept, the settings of the various pitches being specified in a manner well worthy imitation by modern captains. It also appears that the custom of "spoling"—that is, fining the miners for dereliction of duty—was practised. For the month of October, 1766, 41 men (of whom six were punished in this manner) and 38 girls were engaged in dressing the ores, whose wages amounted to 147. 0s. 6d., or at the rate of about 4d. per day. The list of names contains those that are still familiar to mining people; many of the men now working on the mine are descendants from the old worthies. One very singular entry appears as "Christopher Bennats a horse skin." This material is now not used in mining; it was possibly applied for thongs, or traces, for the whim horses, as I perceive Bennats was a whim driver. It is shown that at the end of every month the materials not consumed were returned by the men, as there are entries as low as 2 lbs. of candles, and 1 lb. of powder. Subsist was, as now, given to tributaries, of whom 14 were employed. We insert two specimens of the mode of setting:—

"Cook's Kitchen marks for November, 1766: Westran bottom, William Stephens taker—1 mark is a bonyon hole in the south wall, near the cross, 2 foot from bottom; 2, is a boyar hole in the south wall, 2 foot from bottom; 3, is a boyar hole in south wall, 2 foot from bottom; 4, is a boyar hole in south wall, 3 foot from bottom, and 2 foot from the end: Meyard, 29 Novemb., 1766."

"1 Novemb., 1766: A survey hild at Cook's Kitchen Mine, for setting the north wins Brea lode, to sink, drive, and stope as directed, to six men until the 29 Novemb., 1766; and to save the ore carefully, or be spoiled 2s. 6d. each time such neglect shall happen, and to be conformable to all the customs of the mine: sett to Wm. Tellam for 15s. per fms."

At this period the mine was making extensive returns, considering the number of hands employed, as we find the following entries:—

"Cook's Kitchen are sampled 7 August, 1766:—  
Computed tons, 20; waid 20 tons 12 cwt. 0 qrs.; price, 18s. 5s. 6d. per ton.  
Computed tons, 10; waid 10 tons 0 cwt. 0 qrs.; price, 8s. 11s. 0d. per ton.  
"Sampled ye 2 Oct.:—  
Computed tons, 24; waid 20 tons 13 cwt. 2 qrs.; price, 17s. 8s. 6d. per ton.  
Computed tons, 19; waid 20 tons 7 cwt. 0 qrs.; price, 14s. 10s. 0d. per ton.  
These lots were bought by Bennallack and Smith."

From this period to 1790 the mine seems to have made rapid progress, as on Feb. 4 of that year the sales amounted to about 2000l. for copper; the tin bills and prices have been destroyed. The agents' salaries were 2l. 10s. per month, and the miners' earnings were about 1s. each per day. Amongst the singular charges for sundries is one to Jane Pridemans, for setting forth the corpse of Mr. Arthur, 5s.; Wm. Arthur, consideration for his son being killed in this mine, 1l. 1s.; and Mary Bennetts, for an eight-day clock, 5l. 8s. The doctor's money amounted to 1l. 15s. 6d. per month; and the purser's to 3l. 3s. In this year the costs amounted to about 1000l. a month. Until the month of October no mention of the impost of samplers' fees occurs—in this there is an entry of 10s. 6d. for the samplers; and in November there was a meeting on the mine, at which the victuals are charged 3l. 18s. These charges from this time seem to have been kept up, as in 1797 Mary Cocking was paid 9s. 2d. for victuals



The return of the Bank of England for the week ending Wednesday, compared with the previous weekly return, showed the following results:—

Circulation issue .....	£33,136,710	Decrease	£200,150
Circulation active .....	21,496,165	Increase	295,045
Bank deposits .....	5,531,538	Increase	174,661
Part deposits .....	13,968,346	Decrease	761,020
Government securities in banking department .....	10,509,467	Without alteration	
Other securities in banking department .....	14,815,120	Decrease	2,585
Gold and bullion in both departments .....	19,276,560	Decrease	220,431
Notes and other bills .....	889,405	Increase	62,191
The rest .....	3,097,618	Increase	6,101
Reserve in reserve .....	11,942,545	Decrease	495,191
Total reserve (notes and coin) in banking department .....	12,255,395	Decrease	515,477

A decrease of more than half a million in the "reserve," and of nearly a quarter of a million in gold and bullion, sufficiently accounts for the material decrease in the Bank's circulation. The "reserve" has been principally acted upon by the withdrawal of a large amount of "other" deposits which were temporarily lodged in the Bank last week, upon the renewal of the dividends. The "other" securities are almost stationary. Withdrawals of gold by the dividend receivers, as well as for exportation to Constantinople and the Peninsula explain the decrease in the metallic stock.

The Gazette statement of the movement of the precious metals for the week ending Wednesday last gives the following totals:—Imports of gold, 362,907*l.*; exports of

England should be in need of extraneous assistance, and enclosing a draft for 100*l.*, in aid of a fund for purchasing the lease of the building, and thus extinguish the heavy annual charge for rent. The total amount to effect this desirable object is 3500*l.*; the subscriptions from private sources amount to about 400*l.*, and we understand that a public

Prices of Railway Stock.  
Sales of Copper and other ores, with a mass of valuable data and useful information.  
Published at the offices 4 Austin Friars, London, and to be had of all newsvendors.

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# THE EAST WHEEL BUSY MINE.

Divided into 1024 parts, or shares, of £1 per share.

To be conducted on the "COST-BOOK PRINCIPLE." Bi-monthly meetings.

The capital of the company to be called up by the adventurers as it may be required.

MANAGING AGENT—Capt. John Tonkin.

PURSER—Mr. John Moyle.

BANKERS—Messrs. Williams and Co., Miners' Bank, Truro.

This mine is situated in the parish of Keston, in the county of Cornwall, and is held under licenses granted by the Right Honourable Baron Clinton, J. S. Enys, Esq., and the Honourable Anna Maria Agar, at 1-15th due toll machinery may be erected thereon, and subsequently at 1-15th.

This extensive set has a run of nearly one mile on the course of the lodes, and is about three quarters of a mile from north to south. It is bounded on the west by the Great Wheal Busy United, and on the south it is in a direct parallel with Creenhew, St. Day United, the United Mines, the Consolidated Mines, and Wheal Clifford, all of which have returned very large quantities of copper and tin ores.

This mine is situated in one of the best metalliferous strata in the county, consisting of a light-coloured and soft kyllas. About 100 fathoms south of the present workings a champion vein course passes through the set from east to west. The champion cross-course which traverses Wheal Clifford, and the eastern part of the Great Consolidated Mines, in Grennap, is also a little west of our present workings; and, looking at the geological features of the mine, practical miners of eminence are of opinion that it is a very valuable mining property, only requiring time and capital for its profitable development. All the lodes of the Great Wheal Busy and Old New Hallenbeagle traverse this set from east to west.

This mine was worked about 70 years ago by a few poor men, to the depth of about 8 fms. from surface, for tin, large quantities of which of excellent quality are said to have been raised and sold from the locality of our present workings. We are now breaking some very excellent tin ore from the back of a cross-cut in the adit level, about 15 fathoms deep.

During the six months that we have been exploring this set we have cleared several hundred fathoms of adit. We also set a shaft to sink 10 fms. at £1 per fathom, for the purpose of intersecting a very promising copper lode that was discovered in the bottom of a cutting of the West Cornwall Railway, about 3 fms. from the surface, and from which some very beautiful gossan and stones of rich yellow copper ore were taken, but at the depth of 5 fms. we met with so much water as compelled us to abandon the shaft for the present. We have sunk a second shaft 6 fms. 4 ft. deep, west, and about 30 fms. north of shaft No. 1, on the course of a parallel lode; this lode is about 20 inches wide, and is composed of gossan, peach, munda, prun, and spots of rich yellow copper ore. This lode presents all the characteristics of being rich for copper at a very shallow level, but we were obliged to suspend sinking this shaft also, on account of the water.

We deemed it advisable to clear Wheal Daniel adit, to enable us to drive east on the course of the lode, and which will have the effect of draining the two before-named lodes to a depth of nearly 30 fms. from the surface; to carry out this work with economy, we had to clear up an old shaft, and whilst so employed our men discovered a cross-cut 5 fms. from the surface, which led into a very promising lode, 3 ft. wide, on which we sank a winze and broke large rocks of the yellow sulphate of copper (coated with the black and purple oxide), and which gave on assay produces of from 15% to 25% per cent. for copper. This yield of so rich a copper ore is unusual at so shallow a level. We have been driving this lode in the adit level, and find it to be composed of blende, munda, peach, dokaan, &c., and stones of rich copper ore.

The West Cornwall line of railway passes through this set, thereby affording every advantage for the carriage of materials to and from the mine.

The object aimed at by the present proprietors is to work the mine effectually below the adit, on the main lodes, and to cross-cut to any of the others that may present sufficiently favourable indications, and to continue the adit east till such a time as the managing agent shall be in a position to fix the lode for an engine-shaft, &c. It must be obvious to every one acquainted with mining that the work already done has revealed a considerable outlay, but unlike most undertakings of the kind, the promoters do not seek remuneration for their services beyond the actual outlay expended for bona fide work done, and payment of grants, deeds, &c. They are disposed and prepared to retain a considerable interest in the concern, feeling assured the mine is a fair field for legitimate mining pursuits. They therefore place the speculation before the public with confidence of success, the brilliant prospects of the neighbouring mine warranting the hope of soon placing this locality one of the foremost in the mining world, when the East Wheal Busy must assuredly partake of the benefit, the lodes being merely a continuation of those of the great mine.

A 40-inch cylinder on the improved principle will, it is believed, easily drain the mine to a depth of 100 fms. below the adit; and at the present low price of mining plant, &c., it is believed that the necessary machinery, pitwork, &c., can be erected, and the mine effectually drained, for the sum of about £5000.

## EAST WHEEL BUSY MINE, NEAR CHACEWATER.

REPORT BY MR. GEORGE HENWOOD.

July 30, 1858.—In going over this extensive and well-situated set, I could not fail to remark the appropriate name it has received, it being divided from the Great Wheal Busy Mine by a small stream only, which rivulet forms the boundary line of the sets; therefore, as the principal lodes of that mine are known to run nearly east and west, there can be no doubt they traverse this set, which I found to extend more than one mile on the course of the principal lodes, and nearly a mile on the line of junction with the Great Wheal Busy Mine. An opportunity not often procurable afforded for surface examination by the railway cutting passing through the set in an east and west direction; this enabled me to form a correct estimate of the strata, which are proved to be highly mineralised, and where some of the lodes and veins may be bedictively seen. These are identical in every respect with Hallesbeagle, Wheal Busy, and Wheal Daniel Mines; affording incontrovertible testimony of the East Wheal Busy Mine being in the same kind of strata, as well as on the same series of lodes. It is well known all these mines were productive from surface to the depths they were worked, thus offering great inducement and reason to give this mine a trial. An underground examination of the place at which proceedings are being carried on fully convinced me of the correctness of my opinion formed during my surface survey. I descended the ladder-way to the adit level about 10 fms., from which a cross-cut has been made to the north lode; this is imbedded in a fine conglomerate blue kyllas, much impregnated with crystallised munda, and traversed by numerous veins or droppers of quartz. The lode is several feet wide, of a fine and masterly character in many places even at this shallow depth, and during the present working has yielded good work for copper and tin ores; a large piece of which, with stones of gossan and jack, I saw at the surface near the adit shaft, east of footway shaft. In-shed I also found a heap of excellent stones of copper ore, varying from 2 ozs. each to 80 lbs.; the quantity about 2 tons. The practical eye could easily perceive that they had come from a shallow level, their characteristics being rich black, grey, and yellow ore, with jack, gossan, peach, and prun; the lode carries these peculiar indications throughout its entire composition. This level has been driven by the present company for 22 fathoms on the north lode, or what I deem the north part of the lode, as will be more satisfactorily proved as the works advance; a cross-cut driven south towards the southern lodes shows it to be but 2 fms. which I think in depth will be found to be merely the southern part of the champion lode. The lode is more than 2 fms. wide at its intersection of this cross-cut. The "old men" (but of whom no record exists), stopped the lode nearly to the surface, and took all the ground away for many fathoms in its course; most probably this was wrought for tin, as good stones of copper ore, disregarded by them, are still to be found in the refuse; and in clearing out the old adit large blocks were discovered. These facts would lead to that conclusion. A small adit or drain has been left by them, which is impracticable for present purposes. This carries off the water from these works. As far as ascertained, and from the small quantity of debris, the end of their level is not much further east than the end of your present workings. Hence, therefore, you have acted most judiciously, or cross-cutting south, as you will be sure to intersect the lode, or the old works near the end; a few feet more will effect this. It is highly probable you will meet with something worth while here. The rise to hill will give you considerable advantages in driving. I should strenuously advise you to drive west also, to intersect the junction of a counter lode, on which shafts have been sunk for a long distance in Wheal Busy set. Indeed, nearly home to the boundary, the back of the lode has been seen in your set as well. The pits sunk on it bear good evidences for mineral, and it is supposed to be one of the Hallesbeagle lodes. I shall have been sunk on a fine lode some distance to the north, and stones of fine gossan with spots of copper ore discovered, but beyond this no exploration has been made. A shaft has also been sunk on a lode discovered in cutting the railway, and from which stones of good ore were taken; but the lode was not found, though stones indicating a lode were met with. Water prevented effectual examination. The lodes are numerous; many of them may be plainly seen in the cutting, and the line of burrows traced on others. At one place, on the southern part of the set, burrows of stent or refuse may be seen, whence several cart loads of tinstone have been picked by a tinner, when employed in levelling a portion of the ground. I am at a loss to conceive how property like this, and in such a neighbourhood, should have been so long neglected. On the North Wheal Busy, a promising mine; on the south are the St. Day United, and other celebrated mines—Wheal Clifford, the Great Consols, &c. A vast advantage is, the communication made for you to the great adit, by means of its connexion with Wheal Daniel; this would have entailed an expense of at least a thousand pounds, and two years' delay. Adit shafts have been sunk—all this is so much work done for you. The proximity of the mine to the goods station of the West Cornwall Railway—only half-a-mile, and over a good road—is another peculiar feature that cannot be over-estimated. The set offers all the inducements that can be desired for mine adventure; and, if vigorously and economically worked, can hardly fail to attract attention. To the north, and to the south, there are no time has ever offered more favourable opportunities than the present for doing so. I shall conclude by saying, the result of my examination of the mine itself, the set, and its peculiar advantages, has been eminently satisfactory to me, and such as would induce me to recommend it to my friends for a young and promising adventure. Wishing you every success in the undertaking, I remain, yours very truly,

To Capt. Tonkin, Chacewater. G. HENWOOD, Mining Engineer.

REPORT OF MR. GEORGE HENWOOD.

Chacewater, Sept. 24, 1858.—DEAR SIR: Since my report on the East Wheal Busy Mine, which appeared in the Mining Journal, I have made a thorough examination of the Great Wheal Busy Mine, and feeling greater assurance than ever that the lodes in your mine are those of the Great Wheal Busy, you may, therefore, reasonably expect to have good tin work on the back of your lodes well in depth. I think you will not meet with much water above the adit level. I went underground again at your mine this day, and am pleased with the progress you have made since my last visit. I was surprised to see so much water issuing from the bottom of the tin lode; you may rely on it this is significant of good. I was still more surprised to see the stones of splendid tin from the bottom of this level; no wonder the old men stopped away all the backs! You, like the Great Wheal Busy people, must not expect to find rich ends and backs left standing by those shrewd workmen until you open new ground, but when this shall have been done, I have every reason to believe you will have a good mine. I shall advise you not to put up a smaller engine than 36 fms.; the lode is still very large and promising, containing fine masterly lodes, though the same lodes as Wheal Busy, their engine is too far west to influence the water in your mine much, therefore I advise you to at once put in consistent power, which will prove true economy in the end. GEORGE HENWOOD, Mining Engineer.

REPORT OF CAPTAIN JOHN TONKIN.

East Wheal Busy, Sept. 30, 1858.—GENTLEMEN: Since our last meeting and my report on the 12th July, the works at the East Wheal Busy Mine have been pushed forward with as much energy as was deemed desirable. We have driven on the copper lode 4½ fms., making a total of 29 fms.; the lode is still very large and promising, containing quartz, capel, fookan, munda, and spots of copper ore, but not to value at present. The indications are such as would induce any practical miner to recommend a vigorous prosecution of it; the stratum in which these lodes are imbedded is all that can be desired, being of a light, soft, kindly kyllas, highly mineralised. No doubts exist in my own mind of its being a highly productive lode in depth. We have cleared out 12½ fms. on the tin lode, making a total of 48 fathoms, but have not yet reached the point of the old men's workings, though I had expected to have done so long since; the whole of the backs of this lode, save in a few arches left, have been taken away by them, and to judge from

the sound of falling stones when we are at work, I should say the ground has been wrought nearly to the surface. How much further east they wrought is at present impossible to ascertain. During last week we made an attempt to ascertain if the lode in the bottom were such as to give any criterion of the value of the lode so exhausted; we found it to consist of very rich tin work, samples of which I beg to submit to your inspection. It was impossible, however, to sink more than a few inches, owing to the great influx of water from below. The quantity is unusual, but is by no means an unfavourable symptom. In doing this work, the ground from above crashed the supports, and has filled our level, which I deemed inadvisable to clear out, as it would be dangerous, and of no real use, we having ascertained that the old men have explored many fathoms beyond that place; as it was, we nearly lost two men who were at work, so sudden was the run. I have set these men to cross-cut north to the copper lode, on which I purpose driving, and then cross-cut south to the tin lode occasionally, to find how far the old men have really worked; by these means we shall prosecute the copper lode, and do no unnecessary work in clearing up and securing the old men's places, which I find is a very expensive process. To enable you the better to understand the position of the mine, I have prepared a series of plans and sections; these, I trust, will meet your approbation, and serve the purpose. I can assure you my confidence in the mine is daily increased by examination; the vast quantities of work done, convince me no ordinary temptation would have induced such tedious and expensive works. The bottom of our level, from which the tin stones on the table are broken, is sufficient evidence of the quality of this lode, whilst that of the copper is promising, and all that can be desired at such a depth; but to work the mine effectually, or indeed to work it at all, becomes a question of power, for steam must be resorted to. We have now gone over 45 fms. of rich tin ground, from which all the backs are exhausted, and we have only to procure machinery to enable us at once to make returns at a profit. I beg, therefore, to recommend the erection of a steam-engine of 40 in. cylinder, which will enable you properly to test this truly valuable property in a short time, when I have no fear, but every confidence, in your having a rich and lasting mine. I therefore advise you to place the speculation before the public.

JOHN TONKIN.

## FORM OF APPLICATION FOR SHARES.

Str.—I request that you will allot to me 1024th shares in this mine, and in consideration thereof I herewith send the sum of £ , as named in the prospectus.

To Mr. Moyle. Signed \_\_\_\_\_ Profession \_\_\_\_\_ Residence \_\_\_\_\_

## SHARES IN THE VALE OF TOWRY RAILWAY COMPANY.

MR. MARSH has received instructions from the assignees of Mr. Thomas Hutchings to SELL, BY AUCTION, at the Mart, opposite the Bank of England, on Thursday, Nov. 4, at Twelve o'clock, in Twenty Lots, ONE HUNDRED £10 SHARES (all paid) IN THE VALE OF TOWRY RAILWAY COMPANY.—Particulars may be obtained at the Mart; of DAVID JEREMY, Esq., Landowner; of H. H. CANNAN, Esq., official assignee, 18, Aldermanbury; of T. J. JERWOOD, Esq., solicitor, 17, Ely-place, Holborn; of Messrs. RICHARDSON and SADLER, 15, Old Jewry Chambers, London; and at Mr. MARSH's offices, Charlotte-row, Mansion-house.

## OOLA, IN THE COUNTY OF TIPPERARY.

MR. MARSH is instructed, by the Liquidator of the Oola Silver-lead and Copper Mining Company (Limited) to SELL, BY AUCTION, in One Lot, at the Mart, in the City of London, on Thursday, the 18th day of November, 1858, at Twelve o'clock at noon, the valuable MINING PROPERTY, known as the OOLA MINES, in the county of Tipperary. Also the STEAM-ENGINE, PLANT, and OTHER EFFECTS of the company upon and about the mines. The mines are held upon lease for a term of 40 years, from Michaelmas, 1854, and such lease, together with an inventory of the plant and effects referred to, may be inspected at the office of the Liquidator, situate as under, and a copy of such lease and inventory may be inspected at the office of the auctioneer.—Printed particulars and conditions of sale may be obtained at the office of Mr. G. F. ELAND (the Liquidator), 4, Trafalgar-square, Charing-cross; Messrs. GARDE and ATKINSON, solicitors, 15, Merchants' Quay, Dublin; and at Mr. MARSH's offices, Charlotte-row, Mansion-house.

HOLYFORD MINES, ABOUT TEN MILES FROM TIPPERARY, AND ABOUT SEVEN FROM DUNDUM STATION OF DUBLIN AND CORK RAILWAY.

FOR SALE, BY AUCTION, at the mines, Cappawhitte, Tipperary.

On Tuesday, 24 November, 1858, at Eleven o'clock precisely, the valuable PLANT, MACHINERY, MATERIALS, and a variety of OTHER EFFECTS, comprising—

A 40 in. cylinder PUMPING ENGINE, 10 ft. stroke in cylinder and 9 ft. in shaft, with two boilers about 10 tons each.

A 20 in. cylinder DRAWING ENGINE, with metal piston nearly new, boiler about 10 tons, and winding gear complete.

A 28 ft. WATER-WHEEL, 4 ft. breast, metal shaft, centres, &c.

A 27 in. CRUSHING MILL, 4-head stamps attached.

A small water-wheel for working road buddies, &c.; 120 pieces pumps, 7 to 12 in.; plunger poles, windroes, working barrels, doormops, H pieces, &c., complete; powerful capstan and shears, balance bob, 130 fms. 10 in. capstan rope, 2 horse whins, 100 fms. wooden rods, with strapping plates, &c., complete; 100 fms. horizontal iron rods, 2½ in. by ½ in.; 2 round buddies, long and short, new and in use; lifting frames, and other drawing apparatus. Railway: About 570 fms. iron rails, 2½ in. by ½ in., with chairs, &c., complete; 7 iron railway wagons. 200 fms. 2½ in. wire-rope, self-acting drum, &c.; 20 pieces Norway timber, mountings for three large balance-bobs, smiths and miners' tools in large quantities, a quantity of wood and iron air pipes, launders and stands, oils, hemp, leather, nails, and a variety of stores. Cars, horse and harness, counting-house and household furniture and fixtures, &c.

Catalogues may be had, one week prior to the sale, on application to Mr. C. HUNT, 16, New Broad-street, London; Capt. PASCOE, on the mines; or Mr. LITTLEDALE, auctioneer, 9 Upper Ormond Quay, Dublin.

## NEW ZEALAND.

FOR SALE, BY PRIVATE CONTRACT,

THE ISLAND OF KAWAU.

Affording an opportunity to the mounted speculator rarely met with. Kawau, which contains about 5000 acres, is of freehold tenure, and situated on the east coast of the Northern Island of New Zealand. It is distant some 30 miles to the northward of Auckland (the capital) and two miles from the mainland, and forms one of the principal leading points for vessels entering the Hauraki Gulf, or Frith of the Thames. The strait between it and the main land affords safe anchorage and favourable navigation for boats and small vessels, and the extensive natural harbour of Bon Accord, which runs about two miles into the interior of the island, is of sufficient depth and safety to shelter a considerable fleet of vessels.

The island contains copper, and mining was formerly carried on to a considerable extent. There are numerous bays and inlets in the island, surrounded with luxuriant vegetation, supporting a large number of wild and tame cattle.

Further particulars may be had, and offers in writing will be received, at the office of the North British Australasian Company (Limited), to whom the property belongs. A royalty will be reserved on all minerals which may be found on the property.

By order, DAVID BUDGE, Sec.

27, New Broad-street, London, E.C., September 16, 1858.

## MINING MACHINERY FOR SALE.—FOR SALE,

BY PRIVATE CONTRACT, a 24 in. STAMPING ENGINE, with boiler about 10 tons, fly-wheel, sweep rod, axle, 10 heads of stamps, frames, lifters, &c.—For particulars, apply to Captain OSBORN, Wheal Trevelyan Mine, Goldsmithy, near Marazion, Cornwall; or to Mr. JOHN WATSON, 13, George-yard, Lombard-street, London, E.C.

## ROTARY STEAM ENGINE AND SPARE MATERIALS.—

TO BE SOLD, BY PRIVATE TREATY, an excellent ROTARY STEAM ENGINE, of 12 and 22 in. cylinders combined, with condensing cylinder, on a strong iron framing, good main beam, heavy fly-wheel, and drawing cage, very compact, and in first-rate condition, with a 10 tons boiler. Also sundry lifts of pumps, 8 in. working barrels complete, three 20 in. 9 ft. pumps, pulleys, chains, smiths' bellows, and useful iron, not being required for the future working, having a powerful water-wheel and materials sufficient.—To view, apply to Capt. J. GIFFORD, on the Wheal Crebor Mine, near Tavistock, and for price, &c., to Mr. H. E. CHOKER, 8, Frankfort-street, Plymouth; or to JAMES HITCHINS, mining agency office, No. 8, Finch-lane, London.

## TRESAVEAN UNITED MINES.—NOTICE IS HEREBY

GIVEN, that a MEETING of the adventurers of these mines will be HELD at the Royal Hotel, Truro, on WEDNESDAY, 31 November, 1858, Twelve o'clock at noon, for the purpose of allotting the shares, and the adoption of necessary measures for the prosecution of the mines. Humphrey Williams, Esq., and several influential capitalists, have signified their intention of joining the company.

Stithians, October 19, 1858. WILLIAM MARTIN, Manager.

## THE WEST PAR CONSOLS COPPER AND TIN MINING

COMPANY.—NOTICE IS HEREBY GIVEN, that a GENERAL MEETING of the shareholders in this company will be HELD at the office, 117, Bishopsgate-street Within, London, on TUESDAY, the 26th day of October inst., at One o'clock precisely. At the conclusion of the general business the meeting will be made special, for the purpose of disposing of certain shares that have become forfeited to the company.

By order of the Committee, J. H. MURCHISON, Sec. and Purser.

117, Bishopsgate-street, October 14, 1858.

## THE SCOTTISH AUSTRALIAN INVESTMENT COMPANY

(LIMITED).—NOTICE IS HEREBY GIVEN, that a SPECIAL GENERAL MEETING of the shareholders of the Scottish Australian Investment Company (Limited) will be HELD at the London Tavern, Bishopsgate-street, London, on FRIDAY, the 29th day of October inst., at Twelve o'clock at noon precisely, to confirm resolutions which were unanimously passed at a meeting of the company held on the 30th day of July last, having for their object the conversion of the shares of the company into stock.

By order of the Directors, C. GRAINGER, Sec.

24, Gresham-street, London, October 16, 1858.

## MOST IMPORTANT TO COLLIERY OWNERS AND

COLLIERY MANAGERS.

HENRY J. MORTON AND CO.,

GALVANISED IRONWORKS, 2, BASINGHALL BUILDINGS, LEEDS,

beg to call attention to their

IMPROVED SIGNAL BELLS,

especially prepared to meet the requirements of the new Act for the Inspection of Coal Mines. It is a net metal bell, the decided approval of many large colliery owners and managers. SIMPLE, EFFICIENT, and CHEAP. Price 15s., 17s. 6d., and 20s. each.

BYRAM'S PATENT ANEMOMETER, for testing the ventilation.

Price £3 10s., £3 3s., and £4 4s. each.

STEAM PRESSURE GAUGES, very strong and accurate, £2 and £2 12s. 6d. each.

For further particulars apply to

H. J. MORTON AND CO., 2, Basinghall-buildings, Leeds.

## FAIRBANK'S IMPROVED PATENT WEIGHING MACHINES,

FOR THE USE OF IRONWORKS, COLLIERIES, RAILWAYS, WAREHOUSES,

STORES, &c.

The most ACCURATE MACHINES in use, and the cheapest.

MACHINES of all sizes, from 1 cwt. to 30 tons, for RAILWAY WAGONS, CARTS, or WAGONS.

For prices and all other information, apply to

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2, BASINGHALL BUILDINGS, LEEDS.

Patent Asphalted Roofing Felt, Boiler Felt, Galvanised Iron, Mining Stores, &c., in Stock.

## TO PIPE FOUNDERS.—MERTHYR TYDIL VATT

WORKS.—THE LOCAL BOARD OF HEALTH of Merthyr Tydyl are DESIRING TO RECEIVE TENDERS for a LARGE QUANTITY of CAST-IRON SOCKET PIPES, (each) on application to Mr. or Mr. HAWKESLEY, C.E., 90, Great George-street, Westminster, S.W., on and after Wednesday, the 27th proximo, and sealed tenders must be delivered at my office not later than Wednesday, the 10th day of November next.

By order, J. W. RUSSELL, Clerk of the said Local Board.

Merthyr Tydyl, October 20, 1858.

## THE LLANGOLLEN SLAB AND SLATE COMPANY

(LIMITED) beg to call the attention of Merchants, Architects, Contractors, Builders, to their present STOCK of SUPERIOR SLATE SLABS (which are on hand containing 60 and 70 superficial feet), THIN and THICK ROOFING SLABS (roll and ridge), CISTERNS, SINKS, MANGERS, SALTING TROUGH, FLOW BOXES, and ENAMELLED CHIMNEY-PIECES, CHIFFONIES, TABLE TOPS, SLABS. Their enamelled articles are much appreciated, and are in great demand in the principal towns in this country, Spain, Australia, and China.

Lists of Prices and Books of Design may be had on application to the Manager.

4, Wharf, South Wharf-road, Paddington, W.

## SLATE SLABS, &c.—THE CAMEL SLATE COMPANY

Wadebridge, Cornwall, are PREPARED TO EXECUTE extensive ORDER for ROOFING, LARGE SLABS (up to 100 feet in a stone), WATER and MANGERS, TANKS, BATHS, CHIMNEY PIECES, and every description of slate goods.

Price lists may be had on application.

## GUTTA PERCHA BANDS, TUBING, &c.

Our BANDS, carefully MANUFACTURED from the VERY BEST GUTTA PERCHA only, are considerably CHEAPER, and, when fairly worked, are far more DURABLE than LEATHER. Can be had in lengths of 100 or 150 feet without a joint, and are easily joined or repaired, and are, when worn out, re-purchased as at a third of their original cost. In the event of a break down, a band of any size can be supplied within a few hours of receipt of order. The present prices are as under:—

Bands ½ in. thick and upwards to ½ in. ... 2s. 6d. per lb.  
Bands above ½ in. thick ... 2s. 3d. per lb.

Subject to a liberal discount for cash, varying according to quantity. TUBING and articles equally low. All our patented manufactures are to be obtained wholesale and our own works; retail from any of our dealers.

THE WEST HAM GUTTA PERCHA COMPANY

West-street, Smithfield, London, E.C.

## PROSPECTUS OF

THE BRINSLEY HALL COLLIERY COMPANY (LIMITED)

Completely registered.

Capital £25,000 (with power to increase to £30,000), in 2500 shares of £10 each.

Deposit, £2 10s. per share.

PROVINCIAL DIRECTORS.

THOMAS PERRY, Esq., Highfields Iron-works, near Bilston, Staffordshire.

THOMAS JOSEPH PERRY, Esq., Highfields Iron-works, near Bilston, Staffordshire.

JOHN BOULINOIS, Esq., Charlotte-street, Fitzroy-square, London.

BANKERS—The Derby and Derbyshire Banking Company, Derby.

BROKERS—Messrs. Alexander and Lindow, 21, Tokenhouse-yard, London.

ENGINEERS—Messrs. Woodhouse and Jeffcock, Midland-road, Derby.

SOLICITOR—Mr. Joseph Shaw, Rotten-row, Derby, and Ilkerton, Derbyshire.

STANDING COUNSEL—Thomas Bell, Esq., 3, King's Bench Walk, Temple, London.

SECRETARY AND MANAGER—Mr. John Shaw, College-place, Derby.

TEMPORARY OFFICE.—No. 2, COLLEGE-PLACE, DERBY.

This company is formed for the purpose of working and getting coal or other minerals in the locality in which the business is intended to be carried on in the Brinsley colliery, the parish of Greasley, in the county of Nottingham, and which is well situated in the famous valley of the Erewash, and lies contiguous to the Midland and Great Northern Railway. The situation is most convenient for bringing the minerals into the market, both by rail and canal. The vend by rail is almost unlimited, the Erewash Valley branch line in immediate connection with the main trunk lines of the Midland and Great Northern Railways.

There are also in close neighbourhood several large iron-works, the number and extent of which are yearly increasing.

The estate comprises about 400 acres, and is held under leases from the Earl of Mansfield, the trustees of Mr. James Christopher Royston and Mr. Christopher Royston.

The terms of the respective leases are fair and reasonable, and the reserved and minimum rents are low.

The beds of coal and other minerals have been fully proved, and are considered to be of a more than ordinary valuable character, being without faults, and with little or no water to contend with.


The mines lie at a convenient depth, and may be easily worked; and the coal is superior quality, both for house and furnace purposes.




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MANUFACTURERS OF PATENT TUBULAR TUYERES

**HOT-BLAST FURNACE TUYERES**, with sockets, 36s. each, without sockets, 38s. each; delivered at Chesterfield Station. Terms, nett cash quarterly.


**M**INING STEAM ENGINES  
TO BE LET ON HIRE, OR FOR SALE,  
PATENT PORTABLE STEAM-ENGINES,  
From 6 to 20-horse power, & upwards.



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SLIDE AND CENTRE LATHES,  
PLANING, SHAPING, BORING, DRILLING,  
SCREWING, WHEEL CUTTING,  
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**RIVET MAKING MACHINES.**

**NEW PATENT ACT, 1852.**—Mr. CAMPIN, having advocated Patent Law Reform before the Government and Legislature, and in the pages of the *Mining Journal*, &c., is now READY TO ADVISE AND ASSIST INVENTORS OBTAINING PATENTS, &c., under the NEW ACT.  
The Circular of Information, gratis, on application to the Patent Office and Design Registry, 156, Strand.

**W**INES FROM SOUTH AFRICA.  
DENMAN, INTRODUCER of the SOUTH AFRICAN PORT, SHERRY, &  
20s. per dozen, bottles included. A pint sample of each for 24 stamps. Wine in c  
forwarded free to any railway station in England.  
(Extract from the *Lancet*, June 10, 1853.)

"THE WINES OF SOUTH AFRICA.—We have visited Mr. Denham's stores, selected all eleven samples of wine, and have subjected them to careful analysis. Our examination has extended to an estimation of their bouquet and flavour, the acidity and sweetness, the amount of wine stone, the strength in alcohol, and particularly to their purity. We have to state, that these wines, though branded to a much less extent than their counterparts, are yet, on the average, nearly as strong; that they are pure, wholesome, and perfectly free from adulteration; indeed, considering the low price at which they are sold, the

**EXCELSIOR BRANDY**, Pale or Brown, 15s. per gallon, or 30s. per dozen.  
Terms cash. Country order must contain a remittance. Crossed cheques, Bank of London. Price lists, with Dr. Hassall's analysis, forwarded on application.  
**JAMES I. DENMAN & Co.** Fenchurch-street, corner of Billingsgate, London.

**NOTICE TO RAILWAY AND STEAM-BOAT TRAVELLERS**  
 —ANDERTON'S HOTEL, 162, 164, 165, FLEET STREET. BREAKFAST, joint, 1s. 6d. BEDS, 10s. 6d. per week. DINNERS from Twelve to eight o'clock joint and vegetable, 1s. 6d.; with soup or fish, 2s. TURTLE SOUP and VENISON DAILY. TABLE D'HOTE at Half-past one and Half-past five, at Two Shillings each. A night, corner attendance.

**DEAFNESS, NOISES IN THE HEAD.—INSTANT RESTORATION OF HEARING GUARANTEED AND EXPERIENCED** by one consultation, without operation or instruments. Dr. WATERS, the Consulting Resident Surgeon of the Ear, Nose and Throat Hospital, 32, Spring-garden, Chancery Lane, London, pledges himself to CURE DEAFNESS in 40 or 50 years by post, if the patient is in this country. The dispensary monthly reports show the cures, without failure. A book has been published for deaf persons in the country, free themselves, sent on receipt of letter, enclosing five postage stamps.

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GEORGE THOMAS, Esq., having been EFFECTUALLY CURED

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Address, G. THOMAS, Esq., Craven House, Newcastle-upon-Tyne.

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Five Thousand Copies of a Medical Work to be given away.  
▲ CLERGYMAN OF THE CHURCH OF ENGLAND. have

been cured of severe Nervousness, Pains in the Head, Loss of Memory, Indig-  
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tal anguish resulting from the terrors occasioned by the frauds of wicked preten-  
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ness to which he had long been a stranger. He will, therefore, send a copy of the remark-

CAUTION.—The advertiser regrets to find that of late several disreputable quacks dishonestly adopted this plan of puffing off their deceptive books.

**VALUABLE MEDICAL BOOK GRATIS.**—To those who have been drawn into the vortex of a pernicious secret habit, suicidal in its nature, it drains the constitution of its nervous fluid, that vital principle which governs and regulates every function of our bodies, and to all who suffer from any secret affliction, pointing out the way to purity and health, a valuable medical book of 100 pages, 10 copies of which are being issued gratuitously by the Anatomical and Pathological Society.

Most valuable to those who feel an interest in the subject: treated of, showing sufficient means of recovering perfect health.—*Medical Journal*.

**THE GREAT EUROPEAN REMEDY FOR NERVOUSNESS, RELAXATION, AND EXHAUSTION.**—Protected by Royal Letters Patent, and sanctioned by all the Continental Colleges of Medicine.

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**DROPS,** are the great European remedy for Spermatorrhœa, Exhaustion,  
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 the Bones and Joints, Scurvy, Scrofula, and all those diseases for which mercury, s  
 needle, &c. are not only applied in vain, but increase the suffering.

Price 11s., and four times the quantity 35s. per bottle, obtainable through all medical vendors: of whom also may be had the *Medical Adviser*, No. 33, in various

Advice and medicines sent to any address secure from observation, on receipt of detail of the case and the usual fee of £1. Post-office orders payable at the Holborn to Walter De Roos, M.D., 10, Berner-street, Oxford-street, London. Hours for personal consultation daily from Eleven till Four, Sundays excepted.

**HOLLOWAY'S OINTMENT AND PILLS WONDERFULLY EFFICACIOUS IN CURE OF BAD LEGS, SORES, AND WOUNDS, EVEN IF OF TWENTY YEARS' STANDING.**—number of cures effected by these remedies would appear incredible if they were vouched for by the patients themselves, who gratefully give the honours due to the

also use permit the facts to appear before a discerning public. These remedies if used jointly will cure old wounds, ulcers, and scrofulous sores, after all other means proved unsuccessful. The pills also prove an admirable remedy to those suffering debilitated constitutions, as they create an appetite, remove bile, headache, and palpitation of the heart.—Sold by all medicine vendors throughout the world, and at Prof. Holloway's establishment, 244, Strand, London.

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1624	Balfour Consols (tin), St. Just	11 5 0	11 5 0	11 5 0	12 5 0	12 5 0
10000	Bampfylde (copper), Devon	0 12 6	1 1/4	1 1/4	0 7 1/2	0 7 1/2
4000	Bedford United (copper), Tavistock	2 6 8	6	6	10 5 0	10 5 0
240	Boscon (tin), St. Just	20 10 0	65	65	22 0 0	1 0 0
200	Botalack (tin), St. Just	91 5 0	170	160 170	428 5 0	2 10 0
1200	Brightside and Froggatt Grove, Derbyshire	3 0 0	3 1/2	3 1/2	3 0 0	3 0 0
100	Bryndall Hall (lead), Flintshire	25 0 0	60	60	13 0 0	5 0 0
900	Bryntal, Llanidloes, Montgomeryshire	7 15 0	4 1/4	5 1/4	0 5 0	0 5 0
300	Budnick Consols (tin), Ferran	2 2 6	5 1/2	5 1/2	0 10 0	0 10 0
6000	Bwch (silver-lead), Cardiganshire	3 5 6	1 1/4	1 1/4	0 2 6	0 2 6
4000	Calstock Consols (copper)	5 0 0	4 1/4	4 1/4	0 2 6	0 2 6
1000	Carn Ilea (copper), St. Just	15 0 0	55	55 56	243 10 0	2 0 0
2048	Carnyorth (tin), St. Just	4 15 0	5	5	0 15 0	0 15 0
200	Cefn Cwin Brynau (lead), Cardiganshire	33 0 0	37	37	5 0 0	2 0 0
2000	Colliacomb (copper), Llanidloes	5 0 0	12 1/2	12 1/2	2 5 0	0 0 0
256	Cundarrow (copper), tin, Camborne [S.E.]	20 0 0	60	50 55	85 0 0	2 0 0
12000	Copper Miners of England	25 0 0	28	24 28	7 1/2 per cent.	—
300000	Ditto (stock)	100 0 0	27	24 26 ex in.	1 per cent.	—
1055	Cradock Moor (copper), St. Cleer	8 0 0	27 1/2	25	1 19 0	0 5 0
30000	Craven Moor, Limited (lead), Yorkshire	0 10 0	3	3	0 9 0	0 9 0
128	Cwmystwith (lead), Cardiganshire	60 0 0	250	250	145 0 0	5 0 0
280	Derwent Mines (silver-lead), Durham	300 0 0	150	150	122 0 0	10 0 0
4076	Devon and Cornwall (copper)	4 6 3	9	9	0 7 6	0 2 6
1024	Devon Great Consols (cop.), Tavistock [S.E.]	1 0 0	465	240 260	652 0 0	7 0 0
672	Ding Dong (tin), Guisvay	35 0 0	12 1/2	9 11	16 0 0	1 0 0
358	Dolcoath (copper), tin, Camborne	128 17 0	170	160 180	971 0 0	4 0 0
12900	Drake Walls (tin), Cornwall	2 1 0	1 1/4	1 1/4	0 13 6	0 2 0
300	East Darnall (lead), Cardiganshire	32 0 0	110	110	48 0 0	3 0 0
2048	East Falmouth (copper), Gwennap	2 0 0	3	3	0 7 6	0 2 6
128	East Pool (tin), Pool, Illogan	24 5 0	17 1/2	17 1/2	305 0 0	2 10 0
1024	East Wheal Margaret (tin), Gwennap	7 17 6	2	2	0 5 0	0 5 0
5700	Exmouth (silver-lead), Christow	4 14 0	8	8	3 15 0	0 2 6
1400	Eyan Mining Company (lead), Derbyshire	5 0 0	38	38	18 13 4	1 0 0
4940	Fowey Consols (copper), Tywardreath	4 0 0	3 1/2	3 1/2	41 4 3	0 6 0
4448	General Mining Co. for Ireland (cop., lead)	4 0 0	1 1/4	1 1/4	1 0 8	0 3 0
2000	Goginan (silver-lead), Cardiganshire	12 5 0	2 1/2	2 1/2	22 0 0	0 5 0
1024	Gouamena (copper), St. Cleer	14 5 0	5 1/4	5 1/4	0 7 6	0 7 6
243	Graham and St. Aubyn (copper)	109 10 0	137 1/2	135 140	14 0 0	2 0 0
6000	Great South Tolgus [S.E.] Redruth	0 14 6	14 1/4	14 1/4	2 17 6	0 5 0
26666	Great Wheal Vor (tin), Helston [S.E.]	8 7 6	1 1/4	1 1/4	0 5 0	0 5 0
119	Great Work (tin), Gernoe	100 0 0	110	110	221 10 0	7 10 0
1024	Herdaford (lead), near Liskeard	8 10 0	6 1/2	6 1/2	4 7 6	0 12 6
6000	Hodgson Consols (copper), Calstock	3 13 0	3	2 1/2	2 16 0	0 2 6
2000	Holyrood (copper), near Tippecary	11 0 0	8 1/2	8 1/2	4 2 6	0 5 0
2560	Isle of Man, Limited (lead)	25 0 0	42	42	58 8 3	1 0 0
20	Lacey Mining Company, Isle of Man	100 0 0	1000	1000	1420 0 0	60 0 0
160	Levant (copper), tin, St. Just	2 10 0	105	100 105	1071 0 0	5 0 0
5000	Lewis Mines (tin), Cop., St. Erth	6 1 11	2 1/2	2 1/2	0 10 0	0 10 0
400	Lisburne (lead), Cardiganshire, Wales	18 15 0	100	100	315 10 0	2 0 0
6000	Marke Valley (copper), Cardon	4 10 6	3	2 1/2	0 5 6	0 3 0
5000	Mendips Hill (lead), Somerset	3 15 0	1 1/4	1 1/4	1 13 6	0 3 0
5000	Merrilyn (copper), Devon	3 2 0	6 1/2	6 1/2	1 13 6	0 2 6
1800	Mina Mining Co., Limited (lead), Wrexham	25 0 0	120	120	33 2 6	3 0 0
5000	Mining Company of Ireland (cop., lead, coal)	7 0 0	14 1/2	12 1/2	13 13 4	0 5 0
5000	Nantes and Penrhyn, Limited (2 1/2 shares)	2 5 0	1	1 1/4	0 1 6	0 1 6
470	Newtownards Mining Company, Co. Down	50 0 0	35	35	55 0 0	1 0 0
200	North Pool (copper), tin, Pool	40 18 0	10	10	324 0 0	2 0 0
700	North Rosebar (copper), Camborne	12 0 0	18 1/2	18	76 0 0	4 0 0
6000	North Wheal Bassett (cop., tin), Illogan [S.E.]	nif.	9 1/2	9 1/2	14 12 0	0 5 0
6400	Par Consols (copper), St. Blazey [S.E.]	1 2 6	17	16 1/2	32 5 0	0 11 0
200	Phonix (copper), tin, Linkinhorne	100 0 0	350	395 405	269 10 0	25 0 0
1000	Pulberron (tin), St. Agnes (Preferential)	15 0 0	5	5	18 11 9	1 0 0
1772	ditto ditto (Old and ditto)	—	—	—	1 7 0	0 7 0
560	Providence Mines (tin), Uny Lelant	20 13 2	65	68 70	76 4 6	2 0 0
2500	Rhosvrydell and Bacheiddon (lead)	11 5 0	12	12	0 16 0	0 3 0
512	Rosewarne United (copper), tin, Gwennap	15 10 0	32 1/2	31 33	52 10 0	1 10 0
15000	Ruadon Colliery Company, Limited	0 5 0	1 1/2	1 1/2	0 10 0	0 6 0
12000	Sordridge Consols (cop.), Whitechurch [S.E.]	0 6 0	20 1/2	19 1/2	0 10 0	0 2 6
256	South Canavan (copper), St. Cleer [S.E.]	2 10 0	400	395 405	538 0 0	8 0 0
128	South Crinns (copper), St. Austell	19 0 0	285	285	60 0 0	20 0 0
512	South Tolgus (copper), Redruth, Cornwall	8 0 0	75	70 75	76 0 0	5 0 0
4000	South Wheal Frances, Illogan [S.E.]	18 15 0	19 1/2	19 1/2	305 5 0	4 0 0
794	Spearhead Consols (tin), St. Just, Cornwall	3 18 0	3	3 1/2	8 8 6	0 2 6
298	Spearhead Moor (copper), St. Just	23 7 8	15	15	0 17 6	0 10 0
970	St. Aubyn and Grylls (cop., tin), Breage	6 8 4	2 1/2	2 1/2	0 17 6	0 7 0
20000	St. Day United (tin and copper)	2 0 0	5 1/2	5 1/2	0 3 6	0 1 0
476	St. Ives Consols (tin), St. Ives	16 0 0	30	27 32 1/2	917 10 0	1 10 0
9600	Tamar Consols (silver-lead), Beeralston [S.E.]	4 10 0	3 1/2	3 1/2	4 13 6	0 2 6
6000	Tincroft (copper), tin, Pool, Illogan [S.E.]	9 0 0	3 1/2	3 1/2	8 18 6	0 5 0
572	Trevelyan Consols (tin), St. Ives	11 10 0	9 1/2	9 1/2	1 15 0	0 1 0
120	Trevelyan (copper), Gwennap, Cornwall	15 10 0	15	15	403 13 6	2 10 0
4000	Trevelyan (silver-lead), Menheniot, Cornwall	2 14 0	7 1/2	7 1/2	1 12 0	0 3 0
100	Trematons Consols (tin), near Helston	95 0 0	11	11	85 0 0	5 0 0
400	United Mines (copper), Gwennap [S.E.]	40 0 0	85	85	61 5 0	2 0 0
20000	Vale of Towy (lead), Carnarthen [S.E.]	0 12 6	15 1/2	16 1/2	0 5 0	0 1 0
512	Wendron Consols (tin), Wendron	23 7 8	35	35	3 0 0	1 0 0
6000	West Bassett (copper), Illogan [S.E.]	1 10 0	23	20 22 1/2	14 14 0	0 6 0
256	West Canavan (copper), Liskeard [S.E.]	20 0 0	110	110 115	287 5 0	2 0 0
512	West Darnall (copper), Gwennap	12 17 0	115	115	22 0 0	2 0 0
6400	West Fowey Consols (tin and copper)	7 0 0	8 1/4	8 1/4	0 2 6	0 2 6
1024	West Fowey Consols (tin), St. Erth	2 11 0	18 1/2	18 1/2	0 2 6	0 2 6
400	West Wheal Seton (copper), Camborne	38 10 0	290	280 285	139 0 0	7 0 0
6140	Wheal Arthur (copper), Calstock	2 1 0	3 1/2	3 1/2	6 10 0	0 10 0
240	Wheal Bar (tin), St. Just	15 0 0	18	18	2 10 0	0 10 0
512	Wheal Bassett (copper), Illogan [S.E.]	5 9 6	205	205 210	501 10 0	6 0 0
256	Wheal Buller (copper), Redruth [S.E.]	5 0 0	190	190 200	890 0 0	5 0 0
1024	Wheal Charlotte, Penryn	5 3 4	8	8	1 10 0	0 10 0
250	Wheal Clifford (copper), Gwennap	—	280	300	42 0 0	3 0 0
4000	Wheal Edward (copper), Calstock [S.E.]	5 10 0	3 1/2	3 1/2	0 5 0	0 5 0
128	Wheal Friendship (copper), Devon	50 0 0	90	90	238 10 0	10 0 0
512	Wheal Jane (silver-lead), Kea	3 0 0	16	22 25	8 10 0	1 10 0
5000	Wheal Kitty (tin), St. Agnes	4 10 0	4	3 1/4	0 6 0	0 6 0
1024	Wheal Killy (tin), Uny Lelant [S.E.]	1 7 2	8 1/2	8 1/2	6 0 0	1 0 0
430	Wheal Lovell (tin), Wendron	33 0 0	7	7	31 0 0	1 0 0
448	Wheal Margaret (tin), Uny Lelant	19 15 0	59	62 63	90 0 0	2 10 0
1024	Wheal Mary Ann (lead), Menheniot [S.E.]	8 0 0	45	45 46 1/2	38 12 6	2 5 0
80	Wheal Olives, St. Just, Cornwall	70 0 0	300	300	225 13 0	5 0 0
240	Wheal Reeth (tin), Uny Lelant	39 10 0	27 1/2	15 16	40 10 0	3 0 0
128	Wheal Seton (tin), Gwennap, Camborne	10 0 0	19	19	286 10 0	2 0 0
1320	Wheal Trevelyan (silver-lead), Liskeard [S.E.]	11 2 6	26	25 26	20 2 6	0 7 6
1024	Wheal Tremayne (tin), Gwennap	11 2 6	2 1/2	2 1/2	2 12 6	0 2 6
4000	Wheal Wrey (lead), St. Ives	14 0 0	2 1/2	2 1/2	2 12 6	0 2 6
5000	Wicklow (copper), Wicklow	5 0 0	35	35	30 5 6	1 10 0

(\* Dividends paid every two months. † Dividends paid every three months.)

## FOREIGN MINES.

Shares.	Mines.	Paid.	Last Price.	Present.	Dividends per Share.	Last Paid.
10000	Alten and Quangenang United (cop.), Norway	16 10 0	3	3	£4 5 0	£0 15 0
2464	Burra Burra (cop.), South Australia	5 0 0	142	142	260 0 0	5 0 0
13000	Cobre Copper Company (cop.), Cuba [S.E.]	40 0 0	35	35 37	86 10 0	10 0 0
10000	Copago Mining Company, Chile [S.E.]	16 0 0	33	33	5 18 0	10 0 0
7000	English and Australian	5 0 0	1 1/4	1 1/4	0 10 0	0 2 6
2500	General Mining Assoc., Nova Scotia [S.E.]	15 0 0	21 1/2	20 1/2	11 2 6	0 17 6
15000	Linares (lead), Pozo Ancho, Spain [S.E.]	3 0 0	9	8 1/2	5 15 6	0 5 0
10000	Llanistaw (of Portugal) [S.E.]	1 15 0	1 1/2	1 1/2	0 8 9	0 2 6
103815	Marigault and New Granada [S.E.]	1 0 0	1	1	0 6 6	0 1 0
10000	Pontgibaud (silver-lead), France [S.E.]	20 0 0	6	6	1 0 0	1 0 0
7000	Royal Santiago (copper), Cuba [S.E.]	16 15 0	1 1/4	1 1/4	33 0 0	1 5 0
11000	St. John del Rey (Limited), Brazil	15 0 0	10 1/2	10 1/2	35 7 6	1 0 0
43174	United Mexican (silver), Mexico [S.E.]	38 5 0	3 1/2	2 1/2	1 16 0	0 4 0
88676	North British Australasian [S.E.]	1 0 0	—	—	0 3 11	0 1 3

## NON-DIVIDEND FOREIGN MINES.

Shares.	Mines.	Paid.	Last Price.	Present.	Dividends per Share.	Last Paid.
20000	Acadian Charcoal Iron [L.]	7 0 0	6	6	—	—
50000	Anglian Smelting, Reduc-	0 10 0	—	—	—	—
10000	Australian (copper) [S.E.]	0 10 0	3 1/2	3 1/2	—	—
75000	Bon Accord (copper) [L.]	0 10 0	1 1/2	1 1/2	—	—
10000	Brazilian Imperial	27 5 0	1 1/4	1 1/4	—	—
10000	Brazilian Lead and Mining [L.]	5 0 0	2 1/2	1 1/2	—	—
6000	Central American (silver) [L.]	5 0 0	2 1/2	2 1/2	—	—
25000	Central American (copper) [L.]	2 0 0	—	—	—	—
50000	Clarendon Consols (cop.) [S.E.]	0 12 6	4 1/2	4 1/2	—	—
53040	Colome Mining Co. (lead)	1 0 0	3 1/2	3 1/2	—	—
10000	Copago Mining [L.]	10 0 0	13	11 13	—	—
75000	Don Mountain (copper)	1 0 0	1 1/2	1 1/2	—	—
15000	East Indian Coal [L.]	10 0 0	10	10	—	—
20000	Elterville and Bardowie, Jamaica	0 14 0	1 1/2	1 1/2	—	—
2000	English Ridge, Newfd. [L.]	0 10 0	5	5	—	—
25000	Fortuna (lead)	2 0 0	2 1/2	1 1/2	—	—
10000	Gr. Barrier Lead, Mining, etc.	1 10 0	1 1/2	1 1/2	—	—
2309	Kinzigthal Min. Ass., Germ.	4 0 0	1	1	—	—
25000	Levant Mineral [L.]	10 0 0	1	1	—	—
40000	London and Virginia (gold)	1 0 0	1	1	—	—
80000	Mount Carbon (coal), Virginia	1 0 0	1	1	—	—
60000	New Granada (gold) [S.E.]	1 0 0	1	1	—	—
10000	New Grand Duchy of Baden	0 12 6	2 1/2	2 1/2	—	—